DAVID'S TOOL KIT:

A Citizens' Guide to Taking Out Big Brother's Heavy Weapons

by Ragnar Benson

"... The government is going to knock down your door any second, so you best have some Molotov cocktails and land mines handy."

– Alan Bisbort, *The Hartford Advocate*

"This book... has loads of pertinent information... Benson has apparently gone to great lengths to secure an awful lot of information that is hard to find, if not somewhat classified."

– *Angry Thoreauan*

"Some people will be shocked that there is an extensive literature on guerrilla war tactics, especially written for the possibility that our own military may be turned against us someday to enforce unjust laws. What do you do? Some of us will fight back. This volume tells us how to prudently disable those technological behemoths that the modern military uses."

– *The Reader's Review*

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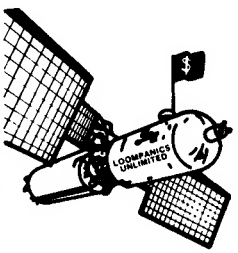

Loompanics Unlimited
Port Townsend, Washington

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David's Tool Kit: A Citizens' Guide to Taking Out Big Brother's Heavy Weapons

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Published by:
Loompanics Unlimited
PO Box 1197
Port Townsend, WA 98368
Loompanics Unlimited is a division of Loompanics Enterprises, Inc.

Cover illustration by Spain Rodriguez

ISBN 1-55950-143-X
Library of Congress Card Catalog 97-74544

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Acknowledgments

Great numbers of experts in the fields of military deployment of tanks, helicopters, support jet aircraft, artillery, armored personnel carriers, mortars and more mundane, thin-skinned vehicles such as jeeps and trucks, have contributed to this volume. Many are currently officers in the armed forces, assigned to places that would be of great interest to readers of this volume. Others are recently retired military, defense contractors with current contracts, or engineers who have worked on the weapons under discussion. For obvious reasons, these people generally wish to remain in the background.

These people include:

- Two weapons design engineers who worked on Bradleys and/or Abrams in their design stage.
- Two officers, one past commander and one present commander, of the world's most prestigious tank school.
- Numerous master sergeants within these schools who were gracious enough to entertain my endless, often contradictory, questions.
- Two retired Marine officers of the rank of major or above who sat down for extended periods of time ex-

plaining the U.S. Marine smart field expedient methods of dealing with various heavy weapons. Training and personal inclination give the Marines a well-deserved reputation for being the best in the world at what they do.

- Three retired army officers of the rank of colonel or above who spent their entire careers with these weapons systems.
- Our nation's top sniper.
- A prior employee of Air America who now has a successful international business brokering military heavy equipment and knows of these devices first hand.
- Our nation's most decorated, most accomplished army aviator — now retired.
- Two retired air force officers who flew most of the jet support aircraft described in this book.
- Two active duty helicopter mechanics.

In addition, I drew heavily on six applicable military manuals:

FM 7-7J. The Mechanized Infantry Platoon and Squad (Bradley). Not a commonly available manual. The cover reads: "This publication contains technical or operational information that is for official government use only. Requisition from outside the U.S. Government for release of this publication under the Freedom of Information Act must be made to Commander, TRADOC."

FM 1-402. Aviators' Recognition Manual. Again, distribution of this volume is restricted and it may not be available to average citizens.

FM 5-31. Boobytraps

TM 9-2350-264-10-10. The Abrams Tank.

FM 90-10-1. An Infantryman's Guide to Urban Combat.

To Catch a Tank ANTARMOR Board, U.S. Infantry, Fort Benning, Georgia. An obscure comic book format publication but one of great value with detailed field expedient methods of dealing with Main battle tanks.

Other books include:

Men Against Tanks, a History of Anti-tank Warfare. John Weeks, David & Charles, Newton Abbott. London, 1975.

OSS Sabotage and Demolition Manual.

The Illustrated Encyclopedia of Helicopters, Giorgio Apostolo. Bonanza Books, NY, 1984.

Jane's Infantry Weapons, 1990-91, Ian V. Hogg. Surrey, England, 1990.

Weapons of the Vietnam War, Anthony Robinson and Antony Preston. Gallery Books, NY, 1983.

Soviet Military Power, William Koenig and Peter Scofield. Gallery Books, NY, 1989.

Jane's Encyclopedia of Aviation, Michael J.H. Taylor. Crescent Books, NY, 1989.

The Winter War — Russia Against Finland, Richard Condon. Ballantine Press, London, 1972.

Other sources of information for the citizen dedicated to taking out heavy weapons are included in the chapter on tools. Those truly interested in the business of field expedient improvised destruction of heavy weapons should acquire as many of these volumes as possible.

Introduction

It doesn't take a Rhodes Scholar in political science to realize that in recent years U.S. government-inspired, directed and instigated acts of violence against its own citizens have dramatically increased.[1] In the name of maintaining an orderly society, those deemed to be in the wrong church, of the wrong political persuasion, owning the wrong guns, medical supplies, wrong kinds and amounts of money or even writing the wrong computer programs are subject to massive, often lethal, reprisals.

As a result, common citizens may find themselves arrayed against government tanks, armored vehicles, machine gun and perhaps even artillery fire for little more than wanting to be left alone to tend to personal business.

Legally this is not supposed to happen, not to mention the inherent moral considerations when the government goes to war with its own citizens. According to our Bill of Rights, citizens are free to worship, associate, believe

[1] Both Waco and Ruby Ridge, where government agents displayed great force as a result of seemingly minor infractions or perceived infractions, are very much on people's minds at this writing.

and vote as they please. Private property is supposedly not subject to arbitrary government confiscation. Yet even private church workers traveling through Miami sternly warn neophytes not to carry or ever display government currency lest our public servants summarily, forcibly, and arbitrarily convert this private money to their own use.[2] Our Founding Fathers were terrified of public confiscation of private property, to the extent of arguing that even treason should not carry penalties of forfeiture. In times past it would have been called stealing, but today putty-faced bureaucrats commonly "seize" supposed contraband property with great impunity.

Modern American politicians refer to these activities as revenue enhancements. Robert Meir, an early organizer of Jews for the Preservation of Firearms Ownership, points out that, in the guise of peace and order, over 200 different methods now exist wherein one could lose all to government forfeiture. Friendly peace officers and soldiers of yesteryear are no more.

According to the *Posse Comitatus Act* (U.S. 18-1385) it is illegal for American soldiers using tanks, artillery and machine-gun-type heavy weapons to deploy against fellow citizens. In the guise of drug enforcement, use of heavy weapons against citizen civilians is common, even if there are really no drugs involved. Government authorities often claim the presence of drugs so they can legally roll tanks and helicopters. Like small cracks in the proverbial dike, constitutional guarantees have been breached in the name of drug enforcement, civil order and the hypothetical common good.

Numbers of excellent thinkers including Robert Meir and many others postulate that the day when average

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[2] Donnan, Jeffrey, Rev. Miami, Florida: February 1992. Personal conversations with author.

citizens are personally fearful of their local police is virtually upon us. It is commonly said that if for some reason the authorities don't like you, there is no way to avoid forcible arrest. Some obscure, unavoidable ruse can always be used to ensure that the evil deed is done.

As initially postulated, it seems obvious that many of us will shortly be called upon to deal with weapons and systems normally associated with full-blown military exercises, wielded by professional minions of an increasingly oppressive government. So far it has been no contest. In spite of a popular Rambo mentality, private U.S. citizens using devices commonly at their disposal will infrequently resist these massive weapons of destruction successfully. When, as in the case of Finland's winter war of 1939-40, tanks are successfully engaged by common citizens, it is only by reason of very high casualties inspired by great patriotic duty. The Finns neutralized about 1,600 tanks, not including about 150 they captured and turned on their attackers. They also downed 725 confirmed Russian aircraft.[3] Anti-aircraft and anti-tank guns were virtually unknown to Finnish soldiers. Yet Russian soldiers were no match for Finnish guerrillas fighting on their home turf.[4]

Those forced to take on government heavy equipment will never find it easy or fun. This is *not* a book about running up and shoving a cup of sugar into the fuel tank of an APC. We attempt to avoid this Rambo-type B.S. at all costs. Unlike the movies, those actually forced to deal with heavy weapons will not do so cavalierly. After displaying fear and disgust because a lowly citizen might actually defy his or her government,

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[3] Condon, Richard W. *The Winter War*. New York: Ballantine Books, 1972, pp. 7, 50, 64, 93, 154.

[4] *Ibid.*, p. 154.

operating these weapons will become much better at avoiding makeshift citizen defensive measures.

One could hope that the young men driving government tanks and helicopters would eventually realize that these are their own citizens they are murdering. But past experience in Iran, Iraq, Mexico and Lebanon, for instance, do not lend hope. Professional soldiers virtually always seem anxious to straighten up messy political situations for politicians, regardless of underlying freedom issues.

Perhaps in future years, we will *not* find ourselves under heavy-weapon attack by our government. It is not inconceivable that our citizen voters will turn on those who wish to control our lives, halting their lofty edicts. In that case, this volume will be perceived to be unduly alarmist. Nevertheless, good specific knowledge can never hurt. Knowing exact methods for dealing with tanks, artillery and helicopters is, in and of itself, valuable.

Our government officials need not fear this volume, unless of course they have some hidden freedom-grabbing agenda. Yet, increasingly in our society, just saying, "I don't want more government!" is perceived as a serious crime.

Foreword

Taking out heavy weapons with little more than improvised weapons takes great skill and imagination. The best sources of information for this work are those who have actually done the job. Unfortunately, most of those who have actually destroyed tanks, artillery pieces or helicopters are either dead or are living in North Vietnam. This is especially true if one was successful one or two times and did not immediately retire.

Some military strategists claim that the French Resistance of 1940-1945 did more damage to the German war effort in France with less than 1,400 lbs. of high explosives than the entire Allied Air Command and their hundreds of tons of bombs.[1] Resistance fighters used their explosives by dribs and dabs, but they placed them intelligently for maximum effect. In one specific instance, five pounds of C-3 explosive shut down the entire Nazi tank-making enterprise in occupied France for the duration.[2] It's been over fifty years

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[1] Taylor, A.J.P. *Illustrated History of the World Wars*. NY: Galahad Books, 1978, p. 378.

[2] The study of the French Resistance from the fall of France June 22, 1940 to liberation August 26, 1944, is of vital interest to those facing heavy weapons and could be a book of its own. Readers should see *Resistance: France 1940-1945* by Blake Ehrlich, Little Brown, Boston,

since these young men and women battled fascism. Most have passed from the scene. Unfortunately, those few who were identified and still live are known only by their code names.

There are, however, those who have spent a lifetime amidst heavy military equipment, who know the various weak points. Don Huskey, a retired Marine major, for instance, recalled the time in Vietnam when an M-60 tank settled to the bottom of a boggy rice paddy.[3] Inch-and-a-quarter cable *double blocked* to a tank retriever and cement bridge abutment failed to shake the fifty-two ton monster even fractionally.

As something of a last resort, he ordered a two-and-one-half pound block of C-4 detonated deep under the front belly of the tank. Sufficiently shocked to break the suction of the gooey grey mud, the behemoth started to move. As long as the retriever kept winch tension on the cables, the tank continued to slide out. There was no damage, either inside or out, to the machine as a result of a blast easily capable of completely dismembering any civilian vehicle.

Moral to the story?

We ain't gonna seriously recommend that anyone trying to defeat a tank use a frontal charge of military-type C-4, much

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1965, pp. 131 and 141-148 for the account of Renee. Other valuable sources of information include *Women in the Resistance*, by Margaret Rossiter, Praeger Special Studies, New York, 1986, pp. 66 & 67 and *SOE in France*, M.R.D. Foot, Her Majesty's Stationery Office, 1966, pp. 338-339.

French resistance fighters wisely learned to use what little they had and to pick out the one irreplaceable part which, if destroyed, shut down the entire war effort in their area. Effective citizen defenders must learn these lessons.

[3] Office-bound experts have invalidly questioned Major Huskey's recollection of events thirty years past. *Weapons of the Vietnam War*, Ian U. Hogg and Anthony Robinson, Gallery Books, New York, 1983, p. 99 confirms there were, in fact, M-60 tanks in use in Vietnam.

less homemade varieties. Experts agree a block of C-4, even when configured as a shaped charge, won't give a tank a hickey. Suggesting that one use small amounts of poorly placed, homemade C-4 to take out a tank is the stuff of movies. When it doesn't work, cinematographers can back up and retake the scene. All that is lost is a bit of film.

C.L. Otter, a retired sergeant in the Army, worked during his military days as a forward scout/observer. Most of his duty involved training exercises within the U.S. This was back in the good old days, before practice ranges were fitted with electronic laser gadgetry. Tank crews simply practiced by roaming the desert south of Boise, Idaho, blasting old car bodies to oblivion.

In spite of barrier gates including numerous warning signs, an especially intense rockhound drove out across the mostly flat scrub brush desert onto the active range. M-60s of the day had to stop to fire accurately, but could do so from 1,000 yards or more.

Thinking the fellow's parked, battered old red pickup was a target, an especially gung-ho tank crew resolutely blew it off the face of the earth, from a sufficient distance that neither rockhound nor forward observer knew precisely where the shot originated.

The forward observer vividly recalls the old duffer running up the hill with rocks in hand, screaming, "I'm sorry! I'm sorry! Take the rocks back!"

Moral to this true account? If one is ever discovered and subsequently fixed in place by an opponent using heavy weapons, the game is over unless he can silently, invisibly retreat. Nothing in our bag of tricks allows a regular citizen to duke it out successfully with a fully organized, fully equipped and trained army with heavy weapons.

Retired Marine Major Tim Stevens said, "If it comes to a traditional tank battle, better let the experts handle it. Best thing a civilian can do is disappear."

There is absolutely nothing in our list of countermeasures allowing a citizen to successfully fight a fully organized, fully equipped and trained army that has heavy weapons. This is true even if the army is of the Third World variety.

In its way, this answers the commonly raised question, "Could the folks at Waco have done anything to counter the U.S. Army tanks and flame throwers?" One especially astute Marine gunny, who now has a degree in electrical engineering, suggests a possible limited counter, but even this idea is dubious. More about it in the chapter on tanks.

Rules of engagement include: the fact that any action undertaken is done so as a defensive measure and only under great duress; will probably result in high casualties; will only be successful if one is very fortunate with terrain and ground conditions; and will never work successfully if one is already fixed in place or has become a target. The military will always have one more APC or helicopter to roll out should defenders be able to take out their first offering. Elements of smart surprise will always play a vital role in any successful encounter civilians have with heavy weapons.

It is often claimed that American soldiers profit from a general cultural philosophy that suggests that when the shooting starts, they will probably *not* be among the 50 percent who are hit. Native Americans and African fighters, for instance, assume that if casualties reach 50 percent, they *will* be among those hit. As a result, these folks tend to be much more cautious about entering combat.

Thai, Burmese and Laotian soldiers customarily line up, fire a few mortar rounds, and then the side with the fewest numbers of men and guns slips quietly away. Like two fighting dogs circling, they do not wish to engage in combat with a superior enemy. During Vietnam, Western commanders could not understand why tough little Orientals would seldom, if ever, blindly charge the enemy. It was because these soldiers could already see the outcome of the

pending engagement, and did not wish to throw away their lives needlessly.

But the experiences of those who have done the work suggest that those who "hunt" heavy weapons must realistically assume a more fatalistic posture. Either they must not attack an obviously superior enemy, or if they must do so, know that the cost will be high. Little glory will be attached to any of these activities. All will probably end up as casualties. But as the man said, better to die with one's face in the wind free, than in some stinking dungeon a captive.

All of the techniques that follow have been successfully deployed in one fashion or another. None are simple, cheap or easy. After checking around a bit, we can validly conclude that no such methodology exists in this business.

People who have military training or who have taken the time to study military ordnance, tactics and techniques should have some advantage over the complete neophyte who suddenly finds himself facing tanks grumbling through his back 40. Even these somewhat experienced people will find themselves at a disadvantage, soon after military personnel discover that defenders are not going to simply turn up their toes and die. Prepared, alert tank, APC and helicopter soldiers will be far more difficult to deal with when attackers no longer have the element of surprise.

Ultimate success will depend on how well-informed one is. How desperate the circumstances. How well you know the country as opposed to your opponent, and what supplies are currently on hand.

Chapter 1
Intelligent Élan

WW I French Army losses during the Battle of Verdun and the Somme (February through December 1916) included 377,231 killed and missing, counting all combatants. An incredible 600,000 men were wounded, captured or missing.[1] The engagement was one of the bloodiest in the annals of warfare, ancient or modern. Pushed on by ancient regimental codes of honor, French officers ordered wave after wave of the finest soldiers ever to take the field boldly to attempt frontal assaults on professionally entrenched German machine-guns and heavy artillery. Predictably, results were disastrous for hapless French grunts.

"You have a mission of sacrifice," a French colonel told his men. "Every day you will have casualties — on the day they (the Germans) want to, they will massacre you to the last man — it is your patriotic duty to fall!" And fall they did, ground to a bloody pulp in oatmeal-like mud.[2]

To this present day, bodies of long-buried soldiers are regularly exhumed whenever road building or construc-

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[1] Taylor, A.J.P. *Illustrated History of the World Wars*. New York, Galahad Books, 1978, p. 103.

[2] *Ibid.*, p. 98.

tion is undertaken in the area of Verdun, northeast of Paris.

Very, very little was accomplished by all of this massive human misery and suffering. At the year's end, opposing lines were much the same as they had been before millions of lives (including German, Australian and British conscripts) were sacrificed. Had blind obedience to orders — including charging enemy entrenchments with great enthusiasm — been effective, the French would have proved it at Verdun.

In many cases French commanders maliciously ordered unproven "doubtful" men to march forward in orderly ranks. When these sorts of tactics proved disastrous, they blamed the spirit, enthusiasm and training of their men. French enlisted troops — for their part — increasingly viewed the heavy suicidal sacrifice of their lives as criminal. Mutinies of 1917 were trackable back to the Verdun experience.[3]

French mothers came to realize that they could not produce sons at a rate that would both satisfy tradition-bound officers and compete with German ammunition manufacturers. An estimated 100 German machine-gun teams produced most of the French casualties.[4]

Those — the hoary adage goes — who do not read and heed history are doomed to repeat it. Contrast the French WWI experience, wherein technologically outdated field maneuvers were deployed against modern weapons, with the little-known Finnish Winter War of late 1939 and early 1940. Or even the Warsaw Ghetto, where suicidal tactics were deployed, but with tangible results.

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[3] *Ibid.*, p. 103.

[4] *Ibid.*, p. 101. The entire history of WW I in terms of callous expenditure of human capital is sufficiently depressing that few authors write extensively on this shameful epoch.

Like a donkey in heat, Stalin looked at Hitler's territorial expansion into Poland, Austria and Czechoslovakia with great envy. Stalin invalidly concluded that the Finns would foolishly and recklessly throw their limited armed forces away in suicidal attacks on tanks and machine guns, much the same as the Poles had. Even Stalin's choice of days for attack suggested foolish arrogance. With winter fast approaching, he ordered an all-out land, sea and air attack on Finland. His goal of emulating Hitler, by securing some cheap new territory, seemed easy and assured.

Stalin's army of 1.2 million men, 1,500 tanks, and 3,000 aircraft struck on November 30, 1939[5]. Including blood, guts and feathers, Finland could muster only 400,000 people to oppose this seemingly invincible force. This level of mobilization was only possible as a result of assigning absolutely every non-combat job to the 100,000-member Finnish Women's Auxiliary. Mobilization of the country was virtually 100 percent, but there were virtually no anti-tank weapons other than a few captured from the invaders. The best anti-tank weapon is usually another tank, but Finland had only a handful of obsolete models.[6] Their air force was comprised of ninety-six operational planes! Anti-aircraft guns and heavy artillery were also almost totally absent. The first line of defense in Finland, it was facetiously reported, was a Finn standing on skis in the snow with a rifle.

However, the Finns did have excellent practical common sense, resourceful leaders who refused to commit their soldiers suicidally, and a strong sense of homeland, family and national purpose. They were fighting on familiar

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[5] Condon, Richard W. *The Winter War*. New York: Ballantine Books, 1972, p. 7.

[6] *Ibid.*, pp. 29 & 30.

ground, and had a bit of maneuvering room precluding anvil-type military actions.

During the first 20 days, white-clad Finnish ski-troopers completely stalled the Soviet advance, stacking up Russian men and equipment like cordwood. Whole Russian divisions, including hundreds of supporting planes and tanks, were obliterated. Those that remained and were separated from their units were buried by an unseasonably early, especially fierce, winter.

Of the approximately 1,600 Russian tanks destroyed, an estimated 400 were taken out by Finns using nothing more than simple Molotov cocktails. Creative Finnish soldiers, working on their own initiative in small detached groups, destroyed tank after tank. Russian tank crews frequently found themselves cut off from their infantry support by super-accurate Finnish sniper fire. Unable to maneuver on the narrow forest-bound roads, they were dead meat.

These were not modern, state-of-the-art tanks as we now know them. But neither were the methods used to destroy them. Finnish soldiers remarked with bitterness that their Molotov cocktails could only be used without immediate detection during daylight hours. Mother Nature provides but four hours of full light at that latitude (at that time of year) and hampered both pilots and Molotov-throwers.

By popular necessity, Finnish soldiers developed gasoline and sulfuric acid-mix Molotov fuel loads. Chemical, rather than flame, ignition occurred when the acid in the broken bottle hit a rag wrapper soaked in a potassium-chlorate and sugar solution. Finnish daredevils on skis comprised their principal delivery system.

Finland lost about 25,000 killed. Another 44,000 were wounded or captured. For this expenditure they destroyed over 725 Russian planes, 1,600 tanks and killed well over

250,000 Russian soldiers.[7] Incredibly, Finns chronically low on ammunition averaged fifty-four rounds from their AA guns per Red plane downed. God only knows how many hapless Russian conscripts were frozen and forgotten in the minus 40° F Finnish nights. Like WW I French and English officers, the Russians seldom knew their conscripts' last names!

Because they did *not* line up in suicidal fashion, under orders from maniacal officers, the thin Finnish line held. After 105 days of incredible punishment, the Russians — with their 108 million citizens pitted against a nation of three million — gave it up as a bad job. This short, intense, little-known Finnish Winter War stands in sharp contrast to the arrogant French- and British-led conflicts which comprised much of WWI.

The Finland Winter War proves that, under the right circumstances, a determined, organized, even poorly equipped civilian army can stall a large, well-equipped and organized modern army which is using heavy weapons. Yet, without room to maneuver, the price that civilians must pay is astronomical. Consider the Jews in the Warsaw Ghetto. They defied an extremely determined, well-equipped army arrayed in full fury against them.

Much like modern Americans, some Polish Jews tried desperately to go along with their despotic government, always hoping that if they gave up just one more piece of freedom, they would finally be left alone.

Early in the winter of 1939, occupying Nazis began rounding up Jews for relocation into a relatively small twelve-by-six-block area of central Warsaw. Including

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[7] *Ibid.*, p. 154. Serious students of the issue of defeating an aggressor using superior numbers of heavy weapons should study the Russian/-Finnish Winter War in detail. Even superficial texts include a wealth of information pertaining to the use of commonly available materials to defeat tanks, aircraft and artillery.

imports from the provinces, half a million souls eventually occupied this tiny area. In late 1940, a high wall was constructed around the Ghetto. Famine, disease and persistent Nazi deportation of Ghetto inhabitants eventually forced the numbers down to about 50,000 Jews still alive in the Ghetto in 1943.

On January 18, 1943, German, Polish and Lithuanian soldiers converged on the Ghetto. Using relatively few small arms smuggled in through the sewer system, Jewish defenders were able to concentrate their fire, summarily driving the fascists from their Ghetto. Numerous fallen Nazis were quickly stripped of their uniforms, weapons and ammunition.[8]

Horribly shamed that they were driven back by "sub-humans," the Nazis quickly upped the ante. Thousands of elite SS troopers, in full battle gear, attacked again, penetrating to the heart of the Ghetto. Wearing captured uniforms to confuse their attackers, Jewish defenders trapped and killed many Nazis. After three such fiascoes, each contributing materially to the Jewish stockpile of arms and ammunition, the local SS chief was dismissed.

His replacement brought in tanks, aircraft, mortars and artillery. German tanks were successfully met with a firestorm of Molotov cocktails. Jewish men, impersonating German officers, secured gasoline for the bombs, in some cases, from German military fuel depots.

Homemade land mines, booby traps and violent — often suicidal — counter-attacks, along with the Molotov cocktails, drove even German heavy equipment back time after time.

German mortar and point-blank artillery fire were mitigated by defenders who burrowed deep down beneath the deepening rubble and shelled buildings, and occupied

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[8] Taylor, A.J.P. *op. cit.*, pp. 365-369.

underground shelters. By May 15, 1943, attrition had done its work on most of the Jewish defenders.

Of the fifty thousand there on January 18, only a small portion escaped to tell their story. Some escaped through poison gas-filled sewer pipes, others simply hid deep in the rubble. Eventually a few came forward to report to the world that they had used nothing but small arms, improvised weapons, personal acumen and determined initiative to defy the mightiest army on earth for more than 120 days.

Freedom-loving citizens, forced to deal with the realities of government-sponsored terrorism, must also learn the lessons of the Warsaw Ghetto as well as those of Verdun and the Winter War. Desperate, clever people, with their backs to the wall, can do as the Jews did. They can hold out against a mighty, well-organized power for a time. But without maneuvering room, they will not accomplish the Finnish result. Attrition will be extremely high, and the ultimate end inevitable. If, under these circumstances, only a few escaped to tell the world, it would be fortunate.

Citizens willing to do the work intelligently and to pay the price can destroy heavy weapons. They first must have some tools with which to do the work.

Chapter Two
Tools

Even in a limited sense, success at taking out government-sponsored heavy weapons will depend on the extent of one's experience and knowledge in several important areas. Categories that follow include specific skills which experts on the subject feel are critical.

General skills, knowledge and abilities such as map reading, mechanical aptitude, terrain and movement, accurate and competent use of small arms, fieldcraft, proper placement and reliable detonation of high explosives, ability to operate all-terrain vehicles, motorcycles, and tracked construction equipment, and operation of modern two-way radios are *not* covered. My assumption is that any truly effective, highly motivated man of action should already possess many of these skills. Numerous books have been written on these subjects, or one can find those who have these skills and enlist them to help with the work at hand.

Natural, free division of labor has always been a benchmark of success. In an emergency, we all must do what we can, but those who are extremely skilled in any given area must assume first responsibility for reliable execution, and perhaps the training of others. In other words, I will run the dozer if you handle motorcycles and snow machines.

Defenders must be knowledgeable regarding all aspects of firearms use and possible systems. This defender tests a night vision device.

Lists of necessary tools that follow relate to specific, often obscure techniques one is unlikely to know or understand, but which are necessary to deal with heavy weapons. Other general talents are those one should likely acquire in the normal pursuit of male hobbies, employment and day-to-day pursuits.

In many cases specific instructions regarding construction of the following devices are covered in other publications. These are skills, such as making explosives

and napalm at home in one's workshop that are not generally known except by the more adventurous. Readers who do not already have these necessary publications can still easily get them.

No need to wear readers down. Instructions in this case are only briefly surveyed.

The lists which follow are not prioritized. They are like the old communists in Soviet Russia. It was a society of equals, but some were more equal than others. When dealing with heavy weapons, all information is equally important, but some of it is more equal than others.

C-4

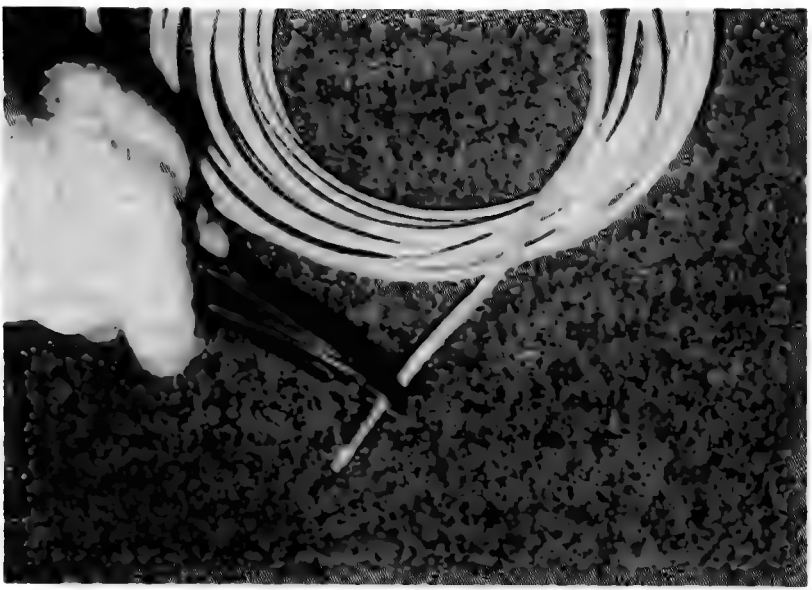
Defenders will absolutely have to know how to mix up and deploy military-grade, high-velocity explosives if they wish to be successful in this endeavor. The best and easiest is Ragnar's C-4, formulated from ag-grade ammonium nitrate, powdered aluminum and nitromethane fuel. It's better still to use more advanced, more stable dry formulations as outlined in my *New and Improved C-4.*

There is a bit more to it than just mixing ammonium nitrate and nitromethane, but the book on C-4 is commonly available. We need not go into detail on exact formulation of this or other homemade explosives. Several other explosives could be formulated, but experts agree that this one is best because of its power and reliability.

Users must also understand common explosive detonation and demolition techniques, as well as efficient, proper explosives placement. These vitally required skills are covered in *Ragnar's Guide to Home and Recreational Use of High Explosives.*

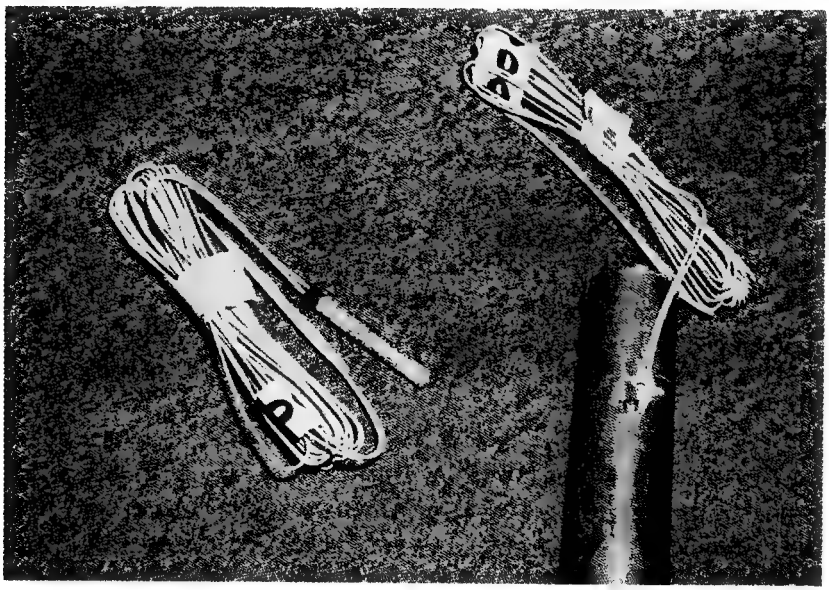
Increasingly, finding suitable detonators is a chore. Despotic authorities realize that if they tightly control these devices, citizens cannot deploy homemade or salvag-

ed explosives against them. Dud mortar or artillery rounds containing from six to thirty or more pounds of excellent high explosives are commonly found in paramilitary operations. We may even be bombed by our own government, providing an even greater bounty of high explosives from which to fabricate mines and other defensive devices. But all of these salvaged explosives are of no value without proper, relatively safe, effective detonators.



Men of action must know how to cap a fuze for explosives.

Detonators can be home-fabricated from hexamine, hydrogen peroxide and citric acid. Doing so successfully is a bit tricky and quite dangerous. Those unfamiliar with this detailed process should acquire a copy of my book, *Ragnar's Homemade Detonators*.



Standard commercial dynamite capped with electrical tape, ready for deployment.

Thermite Grenades

Thermite grenades have a very wide application as counters to heavy weapons. Properly deployed, they crater and pit finely machined steel parts, rendering them useless. In that regard, thermite can be as effective as explosives. On the plus side, when evaluating the two, it usually takes less thermite to do the work. Thermite grenades are much easier to build and deploy than high explosives, and, as a general rule, they do not attract as much attention. But to do the work properly, they must be properly placed. Placement is perhaps more important using thermite than high explosives, and placement is very important for high explosives.

Large, well-made thermite devices burst into flame with sufficient intensity to spread themselves around. To work properly, they must rest firmly on a targeted mechanism, and burn down. On ignition, they may actually bounce off the targeted surface, unless tied or wedged firmly in place.

Homemade thermite cannot simply be placed on the material to be destroyed. Instead of quietly (in their violent sort of way) burning through a control mechanism, pitting the surface of a weapon, or eating a hole in the head of an engine, it may throw itself off, falling down only to burn harmlessly through a steel floor plate or other such covering.

Thermite grenades are always more effective when used to ignite other flammable liquids within the targeted weapons system. Dropping a thermite into the fuel cell of a tank or APC, or placing one on hydraulic assemblies, for instance, is recommended. When deployed against fuel and ammo stores, be certain to get the device down firmly in among the items to be trashed.

Materials required to formulate proper thermite grenades are available from chemical suppliers who advertise in *Shotgun News, Popular Mechanics*, and *Popular Science*. Or, in some cases, they can be scrounged. Cost is as great or greater per unit than for high explosives. Expect to pay $10.00 to $12.00 per thermite grenade!

At times, one can even purchase some supplies locally at reduced costs. Aluminum dust, for example, is frequently available from local silk-screen shops. Home builders have access to sieved iron and steel filings swept up from local machine shops. One can purchase red iron oxide from chemical supply houses. Military manuals suggest that use of fine iron filings produces a hotter thermite, but in actual tests it seems the results are about identical to red iron

oxide which, under many circumstances, is quicker and easier.[1]

Other than sections of relatively obscure government manuals, no books specifically on homebuilt thermite grenades are available. Directions to build are very simple, but keep in mind that the biggest shortcoming of homemade thermite devices is that they are usually constructed too small. If a defending sapper finally succeeds in getting up to an enemy helicopter, the grenade deployed must be of sufficient size to burn a debilitating hole. Deploy at least one-pound units, unless you are trying to neutralize large artillery or tanks. Use at least two-pound devices for these.

Thoroughly mix equal parts by weight of aluminum dust and either very fine iron or steel filings, or commercial red iron oxide. Place this mixture in a large surplus plastic container. An old margarine, cream or cheese container will work nicely.

Lighting mixed thermite is tough. Normally, one need not worry about premature ignition or personal danger while making thermite grenades.

Thermite ignition mechanisms are constructed much as follows. Mix equal parts of powdered sugar and potassium chlorate. Potassium chlorate can be purchased from some drugstores and from chemical supply houses.

Drill at least six or eight quarter-inch holes in a surplus 35-mm plastic film container. This is an important step. Undrilled film containers used as containers for the ignition mixture will blow up, scattering thermite mixture rather than igniting it to burn in place.

After drilling holes, line the inside of the plastic film container with a single layer of stationery-grade paper.

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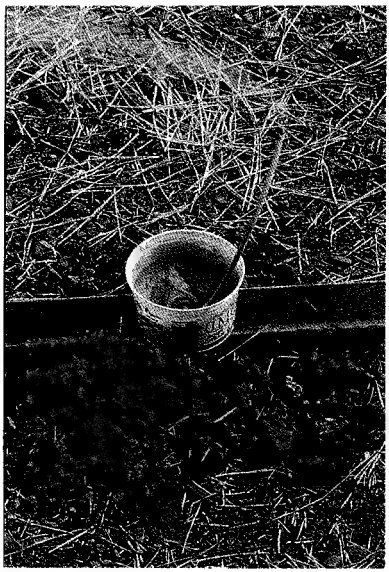
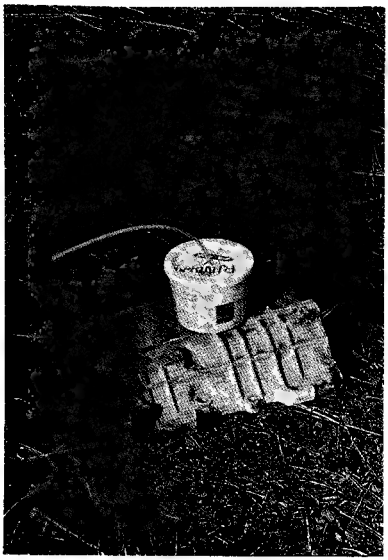
[1] See *U.S. Department of the Army Technical Manual TM 31-200*, p. 15, and *OSS Sabotage & Demolition Manual*, pp. 255-270 for additional information.

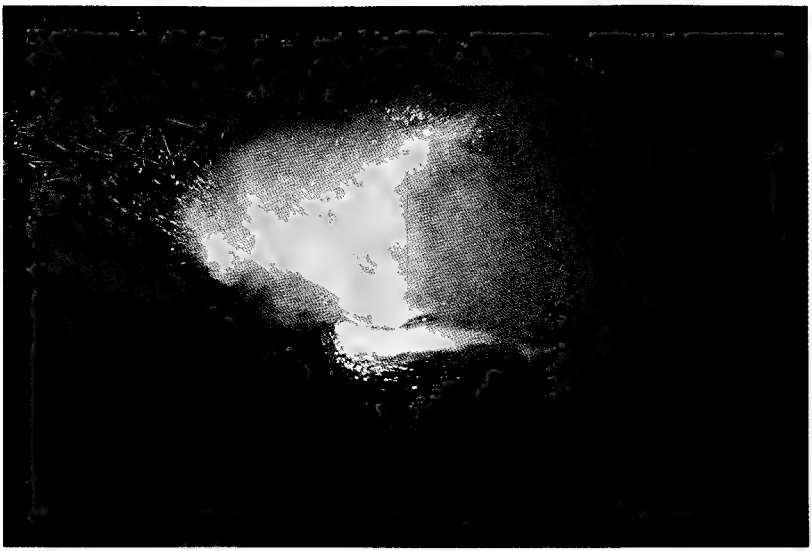
Pack the potassium chlorate and sugar mixture into this container. Poke a fuze hole down through the plastic container lid well into the packed powder. Secure the lid to the film container's plastic body. Finish by firmly inserting the fuze into the sugar/potassium chlorate mix.

Place this ignition assembly well inside the thermite mix secured inside the larger plastic margarine container. The finished cost of these devices can be high, but each one is easily capable of burning a hole right through a helicopter, top to bottom. They will also pit and slag a gun barrel or breach into an unusable condition.

Once ignited, thermite quietly burns with almost explosive intensity for several seconds, reaching temperatures in excess of 4000 degrees F! Intricate steel working parts hit by one of these will be melted, warped and frozen. Aluminum aircraft may actually catch fire.







Molotov Cocktails

It may be ironic that no one by the name of Molotov actually invented these devices (the Finns used them against the Soviets, whose Foreign Minister had the name Vyachelav Mikhailovich Molotov), but it is certain that they are far more effective than one would initially suppose, and properly assembling them is more difficult than it first appears. Whole books could be written on the proper construction and deployment of Molotov cocktails.[2]

In their simplest form, Molotov cocktails are little more than easily breakable bottles filled with gasoline and oil, around which a gasoline-soaked rag is wrapped. Upon deployment the rag is flamed, and off one goes to dash the burning mass against a target.

In practice, it isn't that simple out on the ground. In the first place, the fuel load needed to take out modern heavy equipment must be high, necessitating a heavy device. Stories abound of users who tried to use Coke bottle Molotovs and failed. Coke bottles won't easily break, and the fuel load is far too limited.

Fuel used in Molotovs should be thickened and perhaps treated to vaporize more thoroughly. Thickened fuel has more body and will stick to targets tenaciously. Marine Corps manuals, for instance, suggest melting as many Styrofoam packing peanuts as possible in the fuel.[3] One could also use pure soap, melted paraffin and/or moth balls as thickening agents.

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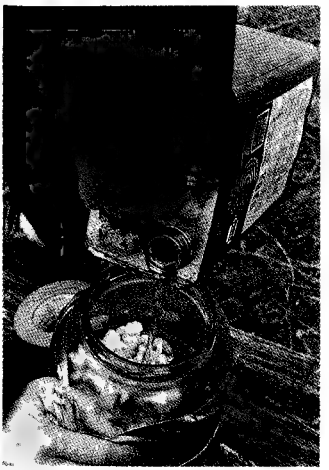
[2] *Unconventional Warfare Devices and Techniques*, TM 31-200-1, U.S. Department of Army, April, 1966, pp. O2-6 through O3-12.

[3] Fialka, John J. "Long Search for a Better Bazooka — Marines Rely on New Recipes for Molotov Cocktails to Stop Enemy Tanks," *Wall Street Journal*, May 2, 1989.

Motolov cocktails are the devices plucky Hungarians used to destroy so many of Stalin's tanks. Modern tanks, however, are built with far greater fire resistance than those used at the start of WW II. Experts suggest that it will take a gallon or more of fuel to stall a modern main battle tank.

Effective Molotovs must be of large capacity and employ some sort of fuel thickener. One gallon jar with Styrofoam packing peanuts is shown.



Lacquer thinner is used to help melt the Styrofoam and to additionally vaporize the fuel load.

Securely fasten a two foot long handle to the bottle containing fuel.

Top off the fuel load with regular gasoline. Use of unleaded is recommended if one is dealing with environmentalists.

Tie a rag which will be soaked in fuel around the bottle.

A device large enough to take out any tank is now ready for deployment.

Three problems result when rags soaked in fuel are lit before the deliveryman takes off. Done at night, these flames give away one's position and intentions, fuel from the burning rag drips down on the deliverer's hand, and, when the cocktail is not delivered in five or six seconds, the burning rag can turn the whole mess into a personally deadly bomb. It could go off in the user's face.

Professional tank killers suggest one or more of the following measures:

Securely glue-wrap a layer of heavy tinfoil around the bottle. This is a simple measure that will temporarily keep heat off the glass and encased fuel, allowing for greater delivery time.

Securely wire a short, stout piece of broom handle, board or even tree limb to the bottle for use as a handle. De-

ployers will still have to wear gloves, but to a greater extent flames are kept at a safe distance. Some users have also rigged thin tin shields to obscure the flame. This latter measure is definitely stopgap. Always be cautious that the glass bottle is not so tightly wrapped that it will not smash easily.

The problems of effectively deploying Molotovs at night without giving away one's position have been addressed by a great number of clever people. Japanese and Finnish users settled on mixing sulfuric acid (from lead acid batteries) in with the Molotovs' gasoline. A dry rag previously soaked in a thick solution of potassium chlorate and sugar was wrapped around the bottle. In theory, acid in the fuel (which does not really mix or react with the fuel) will ignite the entire load when the bottle is smashed. Yet misfires were frequent, as it was only by chance that acid contacted the chemical-soaked rags. Also, thickening the fuel seemed to decrease the likelihood of acid ignition.[4]

Another easy solution to the problem postdates the Finns, but is both reliable and workable. Modern Molotov users report excellent results from taping a disposable lighter on the handle of the device, just below the fuel-soaked rag. On approaching their target, users simply flicked the lighter, flaming the entire load. Reportedly these devices are successful, even in fairly high winds. Problems can result from failure to activate the lighter during the heat of battle. Sometimes this may not be easy to accomplish. Tanks are not normally destroyed by excitable people, but more about that later.

One could also plan to soak a target in fuel, lighting it an instant later with a flare, tracer, or second man with a torch. Again, this is not a really good solution to a more

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[4] Condon, Richard W. *The Winter War*. New York: Ballantine Books, 1972, p. 46.

serious problem than those who have never used Molotov cocktails would suppose.

Suitable jars full of thickened fuel can be safely stored against the day of need, or they can be made up quickly when need becomes critical. In that regard, people who know what they are doing can react quickly and effectively. Jews in the Warsaw Ghetto, for instance, killed numerous Nazi tanks with Molotovs.[5] But just securing supplies of gasoline for their cocktails is a story all its own.

Flamethrower

People find it highly amusing that I have written a how-to book on homemade flamethrowers. Yet, based on the number of books sold, men of action apparently appreciate this information.

Like most tools needed for this work, flamethrowers are not complex once one understands a few basic concepts. Simplicity on our part when fighting against incredibly complex weapons systems provides something of an advantage.

Basically, a flamethrower is a vehicle or man-portable device that propels thickened, burning fuel out over sizable distances (about 50 yards). It is little more than a portable pump and storage tank, with an ignition wick assembly at the discharge nozzle. Modern, portable pump assemblies and tank packages make final assembly relatively simple. Stihl, for instance, now offers a tiny (about 10 pounds) pump and motor combination that is easily fitted to a portable fiberglass tank assembly.

Several government manuals on improvised weapons and tank killing claim that a flamethrower is one of the

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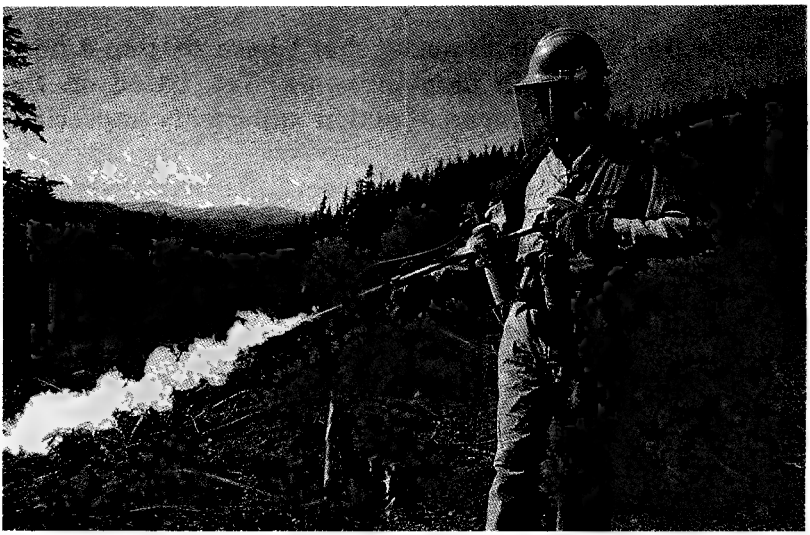
[5] Taylor, A.J.P. *Illustrated History of the World Wars*. New York: Galahad Books, 1978, pp. 365-369.

only weapons that will consistently take out tanks. Owners of these devices expect good domination over tanks.[6]

Fuel thickening is advisable but not absolutely necessary. Users report, for instance, field-expedient success by simply mixing gasoline and old motor oil. Thickened fuel can be propelled much farther, and it has more body with which to hold flame. Thickening can be done with common soap, paraffin, commercial chemicals or — best of all — Styrofoam scrap.

High-pressure trigger nozzles with a propane pilot light are used to control the "shots" from one's flamethrower.



Easily built and deployed flamethrowers will take out any heavy weapon.

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[6] *To Catch a Tank*, U.S. Army Infantry Publication, written by the Anti-armor Board, p. 4, states that flamethrowers, thermite grenades and Molotov cocktails will kill or disable all known tanks.

Flamethrowers are valuable in terms of their ability to place a high volume of fire on virtually any target. They are simple to build and operate, not currently illegal in most places and — again — they are *very* effective. On the down side they are heavy, clunky and quite expensive, and practical, fuel/ammo loads are — in reality — limited. Users get only fifteen or twenty seconds of effective deployment out of four gallons of flamethrower fuel. Four gallons is about all one can tote around in a man-portable unit, but is certainly enough to destroy a tank, if it can be approached.

Construction of a flamethrower is surprisingly simple. This business has been made a bit easier as a result of several commercial package components such as Stihl's tiny pump and motor package and four-gallon back-pack sprayers. Motor, pump, holding tank, high-pressure bypass, radios, flame starter and spray control are all assembled into a neat, handy flamethrower package.

Complete detailed instructions are included in my book, *Breath of the Dragon*. Users need this volume, not only to understand component assembly, but to understand the nuances of thickening fuel.

Sniper Rifles

At this writing heavy, super-accurate, long-range rifles are the current rage among gun nuts. To some extent they replace now-outlawed assault weapons as the weapon of choice among those who enjoy tinkering with guns.

Sniper rifles are defined as heavy rifles with much heavier-than-normal barrels on specially turned, super-accurate actions. Scopes are incredibly rugged 12- to 18-power affairs with large, easily read and set rear-read ¼-minute click dials. Custom, laser-cut composition stocks

specially made for this work are generally used. The weight of completed packages runs from 12 to 18 pounds.

Until recently, military, police and civilian users put each of their sniper rifles together on an individual custom basis. The cost — including barrels, action, mounts, stock, scope and bluing — ran about $2,000 per rifle! Nowadays, Remington, Ruger, and Winchester have started the manufacture of specially tuned, heavy-barreled actions on rugged composition stocks. All one need do is mount one of their scopes on the gun. This is not always an easy task, but it's easier than building from components. Most sniper scopes have 30-mm tubes! The completed package may be quicker and easier, but not necessarily cheaper.

By definition, these machines in competent hands will shoot under four-inch, five-shot groups at 400 yards, and consistent six-inch groups at 800. Honestly achieving this level of accuracy consistently takes great skill, practice and concentration on the part of the shooter/gun owner.

.50 caliber special purpose rifles have the greater long range punch needed to take out heavy weapons and supplies.

Sniper rifle calibers are .223, .308, .30-06, .300 Win Mag or .50 cal. Browning machine gun. For reasons that will become increasingly obvious later in this book, serious sniper rifle shooters, using their weapons as a counter to heavy weapons, usually opt for larger cartridges.

Genuine sniper rifle scopes and mounts are currently a real problem. Very few companies produce these super-rugged, high-power scopes which are characterized by larger-than-normal tubes, heavy tooled-steel components, and lenses set to withstand horrible abuse. Those few manufacturers who do are backordered on their desirable models way into next year. Conventional wisdom suggests that one plan on at least twelve months between the decision to build and first use.

John Plaster currently has the definitive encyclopedia on snipers and sniperism, (*The Ultimate Sniper*, Paladin Press, Boulder, CO). Plaster carefully and completely explains all aspects of sniper work from scopes, binoculars, two-way radios and assembly of equipment, to camouflage and fieldcraft.

Plaster aptly points out that modern sniper rifle philosophy includes the tenet that appropriate, worthwhile targets may often not be human. For our purposes this is a profound truth.

Sniper rifles can be appropriately and effectively used to destroy hundreds of millions of dollars' worth of heavy weapons at minimal risk to the shooter. All snipers need do is identify specific vulnerable targets which, if hit by a single round, immobilize the entire weapon system. A single heavy .30-caliber round in the sight mechanism of a four-inch gun, for instance, can completely incapacitate that weapon.

Sniper fire directed at equipment rather than personnel is somewhat safer. But it is still done at great risk. Thirty-caliber magnums such as the .300 can commonly be deployed over 800-yard ranges, adding a bit of safety to

those who know terrain and movement. The energy of .30-caliber bullets is considered borderline in terms of hurting a heavy weapon. For this reason, and because of their much greater range and safety, many knowledgeable snipers are going to the big half-inch guns firing .50-caliber machine gun rounds. The practical, accurate range of these weapons with their huge 700-grain bullets is about 1,500 yards. When these bullets do get there, they have a great capacity to do damage. These, however, are expensive specialty guns manufactured by only a few U.S. and European makers.

All sniper rifles can be used to trigger mines, including anti-personnel types used in an ambush. A round fired into a case of dynamite, for instance, could detonate claymores and anti-tank mines, clearing the field of both APCs and their infantry.

Talk occasionally surfaces to the effect that sniper rifles should be made illegal. The folks mouthing these lines generally do not differentiate between scope-sighted hunting rifles and super-accurate, heavy-barreled sniper rifles. So far, this talk is only that.

Those in our culture with a three-toed sloth (maximum speed .2 miles per hour) approach to changing technology are in for a world of hurt. At this writing, a considerable amount of expensive, highly technical work is being done in California and England on electronic counter-sniper systems. Currently these systems are too big, clumsy and expensive for use out in the field, other than for protecting the president or a general.

In spite of some shortcomings, such as not being useful past 400 yards and being easily faked out by other small-arms fire in the area, they do show a great deal of promise.

The Lawrence Livermore National Laboratories in California are currently testing a system called "Lifeguard." Developers claim that units which currently cost about $100,000 would be useful as preventative guards for

school yards. Reportedly, electronic locating sensors will be coupled to rifles that automatically shoot anyone in the playground who discharges a firearm. Such is the state of our civilization that such devices are taken seriously.[7]

Lifeguard systems deploy a single infrared sensor that identifies speeding bullets of all types. Information from the sensor is fed into a computer that is linked to a video monitor displaying a digitized image of the bullet's path back to its point of origin (the sniper).

Those deploying such devices could theoretically locate a sniper in a matter of seconds, returning fire with whatever weapons were deemed effective. At present, the sensor system appears to cover only 160 degrees of a field in front of the intended target. Without knowing which 160 degree field to cover, these devices may not be as effective as was first suggested. Snipers could work in teams, allowing one person to fire a round near the device or into it, while others concentrated fire on the prime target.

However, given the speed at which weapons technology evolves, these devices will probably be a factor in the years ahead. Sniper teams must be aware of their use, taking appropriate countermeasures as necessary.

On the assumption that but a single round from a great distance can spoil great quantities of fuel, ammunition, electronics or other supplies and equipment, or discourage military personnel from operating heavy weapons, those intent on effectively dealing with government-sponsored terrorism absolutely must plan to use sniper rifles. They must learn the vulnerabilities of the weapons systems they face, and they must learn how to shoot their sniper rifles. In many regards, this is a journey and not a destination. Good equipment helps, but it is of little value without sufficient practice, patience in putting reloads together,

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[7] Steadman, Nick. "Robo Countersnipers." *Soldier of Fortune Magazine.* Boulder, CO: March, 1995.

knowledge of the terrain over which one will operate, and a thorough understanding of the bad guy's equipment and its weak points, as well as intelligence about the likelihood that counter-sniper electronic equipment will be deployed by an aggressor.[8]

Patience, practice and fieldcraft necessary to do all of this should not be minimized.

Ghillie Suits and General Camouflage

Guile and trickery bordering on bravado and bluff will be universally necessary if one is ever to be successful at taking out enemy heavy weapons. Personal camouflage is the prince of all trickery. Its use must be thoroughly understood by all citizens who aspire to this endeavor.

Ghillie suits originated by Scottish gamekeepers are the state-of-the-art among camouflage outfits. A creeping or prone sniper wearing a Ghillie is just about invisible, even out on virtually bare ground. Yet, like all camouflage, Ghillies must be individually tailored for exact on-the-ground conditions that special time of year.[9] Fortunately, this is infinitely easier to do with Ghillie suits than any other camouflage.

Ghillies are reputed to possess infrared dispersing qualities. Experienced users believe that this trait may be more apocryphal than real, claiming that if one wishes to avoid high-tech heat-sensing devices, they had best take

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[8] Maj. John Plaster, USAR (Retired) has an excellent, inclusive article in *Combat Arms*, March, 1993, detailing an incident during Desert Storm when Marine Sgt. Ken Terry actually took out a Russian BMP with his 50 cal. special purpose rifle from two-thirds of a mile distance, causing surrender of several Iraqis and destruction of the BMP vehicle.

[9] Plaster, John. *Ibid.*, pp. 295-314.

traditional countermeasures. Hiding next to a warm engine block, water tank, pond, campfire or mimicking large wild animals are all suggested.

Ghillie suits should be custom tailored to local conditions. When properly constructed and properly deployed, users are virtually invisible.

It is known with certainty that Ghillie suits have been designed to mimic loose trash and miscellaneous boxes and debris commonly found on city streets. Using these appropriately made camouflage suits, people in war-torn areas such as Beirut or Sarajevo have successfully crawled right down the street in broad daylight to a place where they launched an attack on an enemy heavy weapon.

Ghillie suits are a sophisticated variation of Vietnamese burlap sack camouflage. During the early days of Vietnam, VC soldiers often wore a sack with cutout sides over their

shoulders poncho style. One side colored a mottled straw brown was deployed in appropriately matching cover at the dry time of the year. The reverse side, colored foliage green, was used when the wearer operated in lush green new growth.

Robin Miller, flying choppers in the very early days of Vietnam, reported catching what he reckoned to be an entire company of VC out in a large field of elephant grass. Neither side of the camouflage sack was exactly correct for the current conditions. They stood out like the proverbial sore thumb. To their credit, cornered VC crouched down in a very disciplined manner, till many of their number were chewed up by the armed chopper. He would have gotten them all, the pilot said, but "we ran low on both fuel and ammo."

Home-built Ghillies are far superior to store-bought varieties because they are more substantial, cost far less and are individually tailored to the actual environment at hand. Construct Ghillie suits using a net hammock as the base understructure to which everything else is tied.

Cut thousands of 2-by-12-inch-long strips of burlap cloth from old burlap feed bags. Tie, glue or sew these strips in layers over the entire net, so that every hook and cranny is covered.[10] Some makers spray-paint the strips before attaching; others simply paint over the ragamuffin-looking cover after it is completed. In any case, strips can be replaced or repainted as conditions change.

Skilled Ghillie users take great pains to spray the brown diffused burlap with appropriate colors. They continually change, re-color and substitute as the seasons and crops change.

Always wear a full-length OD or cammi shirt, pants and hat under the Ghillie. A face mask is also absolutely

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[10] *Ibid.*, pp. 295-309.

required. In cities, paint the burlap strips brick-and-pavement color with an occasional trash-looking piece thrown in. Users even sew old boxes and plastic bags onto their suits for added authenticity.

Expect to spend at least 30 to 50 hours making each Ghillie suit. During a major confrontation, the construction of Ghillies is excellent work for non-combatants[11].

Successful users learn to move extremely slowly, taking at times a day or more to approach a target from as little as 600 yards. Spread a small canvas tarp under the rifle muzzle when a shot is taken so that dust and debris do not give away the shooter's position. Take similar patience to exit an area.

The biggest disadvantage to Ghillies is their weight and heat-retaining qualities. When rain is expected, Ghillie suits are absolute misery. In dry conditions they are fire hazards unless treated with retardant.

White Ghillies work well in snowy conditions, provided the cloth strips are given some mottling along with their white color. Old bedsheets are often used to make snow-country Ghillies. These devices are almost invisible in snow, but, like the turned-white snowshoe rabbit, are horrible during a sudden thaw when the world turns brown again. Sometimes it helps — for a while at least — to roll around in the brown.

Many users find it easier and almost as effective to purchase white coveralls. Even cheap, throwaway varieties work well. Always wear a hat and gloves, using them to augment the camouflage. Many also use appropriately colored face masks.

Those not wishing to endure the trouble and expense of Ghillies should scrounge up some U.S. military-pattern

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[11] *Ibid.*, p. 301.

woodland BDUs. Great amounts of sophisticated thought and effort were expended by the U.S. military people to develop this pattern. It is a four-color randomly splotched design that does reasonably well in most northern-latitude woodland settings.

It was these BDUs I recently wore while engaging in my first paintball contest. I also wore a cammi hat, but no gloves or face mask. Opponents, none of whom were hunters, simply wore old street clothes. I got four of them before they knew what was happening, but quickly ran face-to-face with a fifth opponent in heavy brush. We both ducked down at a range of about 30 feet. I held perfectly still, watching the fellow's eyes.

For a couple of minutes he searched around looking for me. I could easily see that his eyes were not focusing on me. Finally they showed absolute panic. Quickly I pulled up and let a round fly. It hit its mark, but, alas, as I moved, a woman far up the hill saw me and chanced a high-angle shot that luckily found its mark. Warfare, I concluded, can be pretty high-tech, but individually contains a great deal of luck and chance.

Claymores

Readers may initially assume that claymores are too limited to be of value to heavy-weapons killers. Yet they are the only device having the distinction of completely changing the face of war during the last 200 years. They have great application as heavy-weapons killers, and should be in every man of action's store of knowledge.

Claymores are actually very sophisticated shaped-charge devices, but with their 1.5 lb. explosive charge they are not sufficiently powerful to take out tanks or APCs when fired from the outside in. Used inside out, it's a totally different story.

While claymores are extremely sophisticated devices, building them to military specs at home is relatively easy. All one need do is to be aware of the intricate technology involved, following instructions carefully.[12]

Claymores are very versatile. They are excellent against cars, trucks and supporting personnel and vehicles. If one can get one inside a Bradley fighting vehicle or Abrams tank, it's Good Bye Heavy Weapon. Inside or out, front or back, helicopters experiencing a claymore will not soon fly again.

Among specific explosive devices, claymores are the most versatile; more so than common hand grenades, which claymores can replace if necessary. They can be used to implement ambushes, or set out and detonated by sniper rifle fire from 400 yards. Claymores can safely destroy fuel, ammunition and even some machinery.

The theory of operation of claymores is complex. Assembly using commonly available materials is easy but very specific. Leave out even one obscure component, or form it badly and the results will not be good.

For this reason, serious readers should secure both *Home-Built Claymore Mines: A Blueprint for Survival* and *Claymore Mines: Their History and Development* from Paladin Press, Boulder, CO, for their reference library.

The cost to build, using off-the-shelf components, including homemade C-4, is about $20.00 each. Claymores can replace hand grenades, anti-personnel mines and light anti-vehicle mines. Vital support personnel can best be separated from tanks using command-detonated claymores.

It is not for nothing that these devices have forever altered the face of war. They are extremely effective, practical devices. Those who find they must contemplate

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[12] Benson, Ragnar. *Home-Built Claymore Mines: A Blueprint for Survival*. Boulder, CO: Paladin Press, 1993, pp. 23-33.

dealing with heavy weapons must also know how to construct and deploy claymores.

Shaped-Charge Flamethrowers

These seldom mentioned devices are often used by U.S. Marines as anti-armor devices and as horribly effective ambush explosives. According to several marines, napalm based shaped-charges will take out any tracked vehicle and clear entire streets of enemy personnel.[13]

Thirty- or fifty-gallon configuration devices will probably even stall an Abrams tank if fired frontally from modest ranges of five to ten yards. Because of their terrible firestorm effect, shaped-charge flamethrower devices are usually command detonated. Reportedly, a few smaller types have been mounted on motorcycles, light trucks and even heavy trucks.

Basically, these devices consist of powerful shaped-charges fastened to the back of a load of gelled fuel. With violent force they blow ignited fuel down streets, onto the backs of vehicles and into buildings, planes or APCs. Heavier, thicker fuels throw better and farther, arguing again for one to know how to mix napalm.

Shaped-charges are built at home using homemade C-4 and old champagne bottles. Champagne bottles are valued for their quick, easy, pre-formed conical base. One can also construct a suitable container using an old funnel, molded paper, plastic or virtually any other material. If one can

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[13] Citizen defenders are indebted to Maj. Donald Huskey, USMC Retired, for sensitizing us to this device, which is mentioned in Department of Defense manuals, but only superficially. Also see the Anti-armor Board's publication *To Catch a Tank, Big Game Hunting Made Easy* and the May 5, 1989, *Wall Street Journal* article, "The Long Search for a Better Bazooka — Marines Rely on New Recipes for Molotov Cocktails to Stop Enemy Tanks!"

find the materials, conical bases for shaped-charges should be made of zinc or copper sheeting. These materials contribute to the explosion and enhance the shaped effect.

A standard quart or liter champagne bottle with its neck cut off will hold from six to eight pounds of homemade C-4. That's enough for up to thirty gallons of napalm, but far too much explosive for smaller five-gallon devices.

Marines use about two pounds of C-4 for five gallons of napalm, adding about one pound for every additional five gallons, up to a total of about thirteen to fifteen pounds necessary for a fifty-five-gallon barrel. Marines use blocks of C-4 held in stand-off position, or regular issue shaped-charge devices. At times they simply use claymores and five-gallon jerry cans full of napalm.

Large home made shaped charges holding fifteen pounds of explosives must be made with large funnels composed of plastic or sheet tin, copper or zinc.

Tape or wire three steel legs securely to the conical-bottomed container holding the appropriate amount of explosives. These provide the additional stand-off necessary to secure a genuine shaped-charge effect. Bend these supports over in an L-shape and secure them to the fuel container. One can also employ rope, screws, tape or steel strapping to fasten this charge to its fuel load.

Although this device is mostly directional, it does have a limited side blast component as well as a very lethal back blast. Reportedly, some of these devices were deployed by Israeli and Arab military units, mounted on light trucks or even motorcycles. One could provide a small steel shield to protect the operator. Still, it would seem wisest to deploy from a static mount or do extensive testing.[14]

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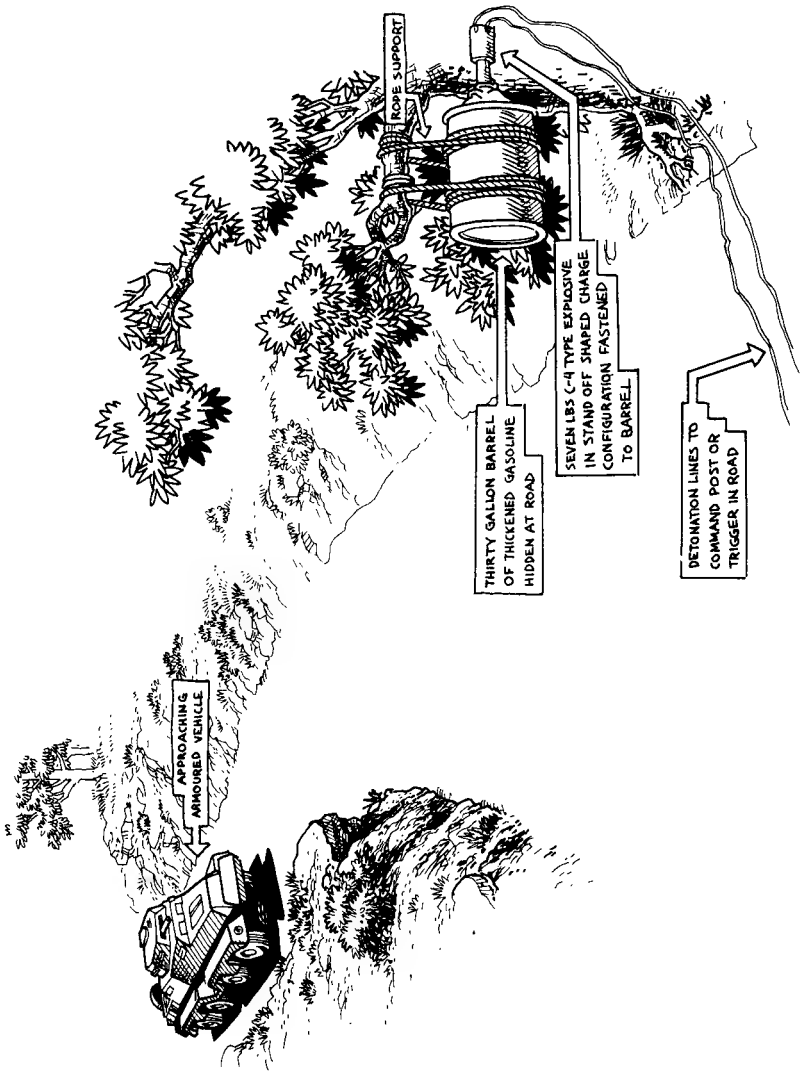
[14] Shachar, Ezekiel. Israeli armed forces (deceased). Wheaton, IL: October 1991. Conversation.



Shaped-Charge Flame Thrower
(Illustration by Spain Rodriguez)

A few obscure military training manuals mention the placement of claymore mines behind a jerry can full of gasoline and heavy oil. This device would stall a tank if fired at close range from directly behind. Claymores and jerry cans certainly are the most expedient of field-expedient anti-tank weapons.

Smoke-Generating Devices

Use of smoke to obscure a battlefield is as the old as battlefields themselves. In this current age of heavy armor, Bradley fighting vehicles and helicopters, intelligent use of smoke and its sister device, field burning, is incredibly important.[15]

However, as this is being written, effective smoke-penetrating sights are being perfected. The latest models are currently being installed in military heavy equipment. Huge successes with these devices during the Iraqi war show the effectiveness of continual military upgrading. Modern U.S. tanks are equipped with smoke grenades that produce a kind of second-generation extra-heavy smoke, which is less likely to be penetrated by modern thermal sights.

Still, amateurs such as ourselves must employ smoke, hoping that those using modern infrared sights will be poorly trained, not equipped with the latest models, or simply surprised by the deployment of smoke.

Smoke-generating machinery as used on main battle tanks and navy vessels is little more than thick steel plates heated by controlled flame. Heating oil, diesel fuel or even old motor oil is sprayed onto the hot plate, creating dense billows of smoke. The flow of oil onto the plate, and the

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[15] *The Mechanized Infantry Platoon and Squad (Bradley).* Headquarters, Department of the Army, 1986, pp. J-1 through J-4.

heat generated on the other side must be closely monitored to produce volumes of smoke rather than a grand fire.

Perhaps because modern combatants are not as protected by smoke as they once were, regular, large, factory-built individual smoke generators are only infrequently found in today's military-equipment inventories. Smaller chemical smokepots set out upwind from permanent installations still find some utility among police and military.

Smoke is still extensively used on an immediate, almost-expedient field basis to guard against smart bombs, helicopter rockets and to cut off infantry support. Commonly, this is little more than keeping a stack of burnable tires and fuel near likely targets. In Vietnam during the early days of smart bombs, Vietnamese defenders often lit tires when air-raid alarms sounded.

As is true with all smoke, users must wisely evaluate winds and terrain. Be certain that any smoke generated blows onto the target, suitably obscuring it. Rolling clouds of smoke, even from burning tires, may allow defenders to climb atop enemy heavy equipment so that it can be dealt with by other means.

Smaller chemical smoke-generating devices can be constructed at home. Yet their expense, limited capacity and the fact that they are usually no more effective than burning tires or oil limits their utility. Burning tires are used virtually 100 percent of the time in urban warfare to obscure and to create roadblocks. Most CNN news shots of Sarajevo or Grozny, for instance, show clouds of smoke from burning tires.

Hardcore environmentalists are undoubtedly pleased that whenever war breaks out, old tires disappear.

Two-way Radios

Coordinating successful field efforts to take out heavy weapons requires excellent communications. People who plan ahead a bit have no trouble putting good two-way radio systems together in the U.S. That is fortunate, as mere possession of small, walkie-talkie-type radios is a serious offense in many supposedly open "Western" countries.

Perhaps the past popularity of hand-held CB radios fostered the current use of much more powerful, rugged and reliable two-meter radios. Modern units in this two meter band operate on 9,000 or more channels, have ranges of 18 to 20 miles, and will even duplex (send on one channel and receive on another). All of this in a package so small one can seriously worry about losing it out of one's pocket.

Two-meter FM radios are made for use by license-holding ham operators who wish to talk on the go. Use of some of their channels will get one into a repeater that will spread the messages clear across the country.

As long as one is careful about picking basically unused channels not tied into a repeater, and does not use one's radios except on special occasions, there is no problem. Sales and ownership of radios are not restricted in the U.S. All one need do is to explain to the electronics wholesaler that these radios are a gift for a ham operator.[16]

Look in electronic magazines such as *CQ*, found on most magazine racks, for advertisements for large electronics-supply warehouses. Numerous Japanese brands are available, but knowledgeable users claim ICOM is the best,

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[16] The author wishes to thank Ken Gordon, an electronics wizard of the first order, who holds a record nine amateur licenses. Ken is one of us. His imput on this section is greatly appreciated.

most modern brand, having the best prices and most models.

Cost per unit is about $310, including charger and extra battery pack. These prices have held steady for a good many years, in spite of great hardening and miniaturization.

Proper, effective use of radios is not easy. It's best to practice while hunting before taking up anything serious. We use personal rifle calibers as call signs rather than names. This is faster and more discreet.

Always ring up the intended receiver by calling — ".308...308. This is .244" — rather than just launching into a radio transmission that the receiver may not be picking up. Keeping one's radio in the proper functioning, listening mode comes only with practice. At times one member may let his battery go down a bit without increasing the volume. Until he tries to reach somebody himself, he is out of touch. Contact with various members of the group must be maintained at regular intervals. Inadvertent frequency switching is another, often pervasive, problem.

Most two-meter hand-helds have two power settings. Use the lower power setting to save batteries and to preclude reaching out too far. Two-way radios have an absolutely maddening tendency to run short of battery power just when the action gets really serious. We always carry one extra set of batteries during daily operations.

Carrying the radios themselves used to be a problem. They bumped around, got full of mud, and were soaked by rain. Today's much smaller units can simply be placed in a protected shirt pocket, and secured by a safety.

We have run some very interesting operations with our two-way handhelds. In the future, knowledge of proper use and equipment of radios will certainly be helpful.

Our list of tools is — in the main — completed. Additional devices could be included, making up a thick

book all of their own. As mentioned previously, those with the best general, broad-based knowledge, and the greatest flexibility in their outlook and application are going to do this job best. A number of reference books have been mentioned. Serious practitioners will need these books if they don't already know the information they contain.

Recently, several little old ladies in tennis shoes came up to me at a conference asking to purchase a packet of my books on detonators, C-4, commercial explosives and flamethrowers. They wanted to lay the books back "against the time of need." These are perilous times indeed, when little old ladies are telling me that only knowledge about explosives can keep them free.

Chapter Three
A Brief Practical History of Tanks and Tank Warfare

History can be dull. As the old, old song goes, "Those who fail to understand will repeat." Material covered in this chapter is extremely important for those who might actually have to go out and destroy a tank in their village.

The first tank action, or — more correctly — use of tanks in history took place on September 15, 1916, on the Somme in northeastern France. In this regard, tank warfare is younger than the use of aircraft, submarines, and even radios in combat. Fifty-nine British tanks and their eight-man crews were sent to France under the greatest secrecy. Of these, only 39 made it to the front for the attack. Ten were held in reserve, and ten broke down before they reached the front. Of the 39, fourteen left promptly at jump-off time. Five of these then stuck in the mud.[1]

An incredible nine of the original 59 completed their assignments for the day. The lessons learned on September 15, 1916, are still a legacy. Even to this day, military tanks are complex beasts, subject to numerous breakdowns. Maintenance is one of the main duties of the crew. A division of 300 modern tanks, for instance, moving 60 miles or three hours on a forced march will, on average,

[1] Weeks, John. *Men Against Tanks*. London: David & Charles, 1975, p. 21.

experience at least 100 breakdowns. Most stoppages are not serious, and the tankers will eventually catch up, but the net effect will be disorganized units and tired crews.[2]

Although the British called the action an outstanding success, it was obvious that the greatest enemy was the tanks' own mechanical unreliability. Today, 90 percent of a tank crew's time is spent outside the vehicle, leading to casualty rates of 25 percent while the crew isn't even in their tank fighting![3]

British tank crews were comprised of eight men. Four gunners sat in sponsons or blister ports, operating two heavy six-pound cannons and four Hotchkiss machine guns. A commander was in front in a left-hand seat. Alongside was the driver. Two gearsmen rounded out the crew. Commands in the horribly noisy, dirty, smoky environment were given via hand signals.[4]

Virtually all modern tanks operate with three- or four-man crews, including a driver, loader, gunner and commander.[5] These tanks can remain in action with only two crew members, but this duo must work very, very hard — quickly — to stay in the game. At times, some armies attempt to operate tanks with three-man crews. It's a non-starter. In combat, these short crews of two and three work too hard. Average combat efficiency drops from one hour in an Abrams to much less than that when three-man crews are used. Tank crews expect to spend about eight hours per day on maintenance. Using only three men,

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[2] Dunnigan, James. *How to Make War*. New York: Quill, 1983, p. 48.

[3] *Ibid.*, p. 55. Note: Serious readers are urged to locate both *How to Make War* by James Dunnigan and the much more obscure text *Men Against Tanks* by John Weeks. Tremendous amounts of good information can be taken from both volumes that could be of value when contending with armor.

[4] Weeks, John. *op. cit.*, p. 19.

[5] Forty, George. *M4 Sherman*. New York: Blandford Press, 1987, p. 25.

maintenance stretches out so much that they have no time or energy left to fight.[6]

Top speed for these old clunkers was about five miles per hour. Enemy machine gunners so peppered the tanks with fire that lead dust splashed through minute cracks in the riveted boiler plate, creating a deadly hazard for the crew. Modern tanks can be pretty well-sealed. Many, including our Abrams, have filtered, positive-pressure air — guarding against gas, dust, and moisture. The top speed of a modern tank is about 45 mph, which an Abrams can reach in a matter of seconds. In spite of modern human engineering, tank crews often become nauseated from motion and fumes, and they suffer from fractures and lacerations as a result of being tossed about violently while the tank is underway.[7]

For the British, the tank combined mobility, firepower and protection into one semi-usable package for the first time in history. They were sufficiently pleased with the results that they undertook crash programs to make their tanks more durable, effective and maneuverable. German strategists at first were tempted to label use of tanks as "unfair."

However, while the English tried to make their tanks better, German militarists concentrated on finding weapons adequate to stop tanks by shooting through them. It was at this early date that the concepts of providing the average infantryman an effective defense against tanks were first promulgated.

German tank production during WW I was lackluster to dismal, to say the most. Only about 20 German tanks were built and deployed, although German soldiers did re-deploy some captured British tanks. Well-trained, experienced

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[6] Dunnigan, James. *op. cit.*, p. 56.
[7] *Ibid.*

crews are the key to successful tank deployment. Lose your crews, or be without them in the first place as was true with the Germans, and it doesn't matter how many machines there are or how modern they might be.

Although somewhat poorly and incompletely articulated, it was also at this time that the three essential elements of tank defense were identified. These include holing the tank, burning it, or trapping it in an environment such as mud, rocks or grease where it can not maneuver. It may be some combination of this trio, or an ultra-modern application of explosives physics, but only these three basic methods are available to modern defenders.[8]

Tanks get stuck easily, smart defenders will attempt to lure them onto unfavorable ground.

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[8] Weeks, John. *op. cit.*, pp 19-34 and 181-186.

Initially, German armorers attempted to bring out bigger and better rifles and machine guns, firing high-speed-tungsten-carbide-covered projectiles. British engineers responded by adding additional layers of boiler plate, and finally developed hardened armor plate set at scientifically calculated angles designed to deflect any round. Today's tanks are protected by tough ceramic/steel composites or by sheets of super-dense, depleted uranium.

Incrementally, special German anti-armor artillery battalions were formed to blast British armor out of the mud. Eventually, any artillery piece big enough to punch a tank's armor was also too heavy for use on the front lines by infantry.

By 1928, French tank engineers came out with their NC-27 model tank. Reportedly, it could not be stopped by any known, fixed breach weapon. Just as incredibly, it carried only 1.18 inches of frontal armor.[9]

The Spanish Civil War (1936-39) graphically demonstrated that even great, heavy 37- to 50-mm guns firing hardened projectiles at great speed were inadequate. Barrels in some of these hyper-velocity guns lasted but 200 rounds.

European countries looked to Spain to see what they could learn. Positive understanding appears, in retrospect, to be spotty at best. The lesson that defenders could not successfully muscle tanks into submission was lost for at least six years, until high-tech finesse provided a solution. In other words, guns of the era couldn't shoot through modern tanks, so smart defenders turned their attention to developing methods of burning or trapping them.

Russian tank-design engineers came out with their incredible wide-tracked, heavily armored, low-slung T-34s, for which those entering WW II had no effective answer.

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[9] Grupp, Larry. *Claymore Mines: Their History and Development.* Boulder, CO: Paladin Press, 1993, pp. 17-33.

Emboldened by the Finnish experience in their Winter War and having little else, German tacticians suggested Molotovs, Teller mines under the tracks or the over-hanging turret, and satchel charges.

Casualties were high, but having no infantry weapons capable of taking on Russian tanks and possessing the necessary *esprit de corps*, these instructions fit well with the Nazi psyche. In one notorious case, a single Russian KVI Joseph Stalin heavy tank held up an entire German advance almost 48 hours. Seven direct hits with an eighty-eight flak gun finally put the monster down. But even then the crew, which was still alive, had to be burned out.[10]

Led by a brilliant munitions physicist, Hubert Shardin, in the Luftwaffe's technical offices, Germany began developing scientifically formulated and constructed shaped-charges detonated on the target from a stand-off position. It wasn't their high speed, hardened cores or large explosive warhead that made these devices so destructive. Pure physics, intellect and refinement did the job nicely. Shardin proved that relatively small, lightweight, rocket-type warheads carrying only a pound or two of explosives could punch through virtually any armor.[11]

From this beginning, a good throw-away rocket-type weapon called a Panzerfaust 60 was developed. It was much like the current Russian RPG-7, only much smaller. German anti-tank physicists also came out with an 88-mm anti-tank rocket called a Panzerschreck. It was similar to the American bazooka, leading many to question who stole which idea from whom.[12]

English weapons developers, after unsuccessfully trying many high-velocity, fixed-breech weapons, finally settled

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[10] Weeks, John. *op. cit.*, pp. 59-61.

[11] Grupp, Larry. *op. cit.*, pp. 19-28.

[12] Weeks, John. *op. cit.*, pp. 69-73.

on a simple little spigot mortar called a PIAT (Projector, Infantry, Anti-tank). This was a clunky but effective 32-lb. device firing a grotesque shaped charge out to about 100 yards. PIATs had little muzzle flash and no back blast, which proved especially helpful when fighting in the confines of French and German cities.[13]

American anti-tank weapons designers during WW II were initially severely criticized for their lack of initiative developing light, portable infantry grade locked breech weapons. A few 37- and 75-mm anti-tank guns were tried, but by the time the U.S. found itself in the war, it also found its anti-tank arsenal to be hopelessly antiquated. As a result, the Yanks simply skipped over several generations of now obsolete designs.

Prior to WWII the U.S. lagged the rest of the world developing closed breech anti-tank artillery which quickly proved ineffective anyway.

On the often invalid assumption that the best anti-tank weapon is another tank, the U.S. Army first produced a T8 self-propelled 90-mm anti-tank weapon. It was an effective

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[13] *Ibid.*, p. 85.

device, but not an infantry anti-tank weapon. Tanks can, indeed, take out other tanks, but this does nothing to protect the average grunt in a foxhole who must respond to a tank threat immediately.

But all was not lost. Good old Yankee ingenuity again won the day. The greatest contribution to infantry-level anti-tank warfare in history was made by U.S. Army Colonel Leslie A. Skinner. In the spring of 1942, Skinner perfected a weapon called a bazooka that became famous. He took it and his only nine rounds of ammo to Aberdeen Proving Ground where, fortuitously, a live fire demonstration against tanks was in progress. Using his 2.36-inch bazooka, Skinner was able to hit the tank on his first and second shots.[14]

Wide-eyed and eager, army glitterati blasted away all of his remaining rounds, resulting in an incredibly urgent equipment order.

On May 19, 1942, the U.S. Army contracted with General Electric Corporation for 5,000 bazookas. Delivery was to take *not over* 30 days. With eighty-nine minutes to spare, G.E. filled the order. Shipments were immediately sent to Russia and North Africa, where it became evident that the device was a winner but was also a little too small.

Army technicians upgraded it to 3.5 inches. These bazookas continued in service until 1945, when some tanks started appearing that could not be taken out with one shot from the larger 3.5-inch rocket with its 3½-lb. warhead. Heavier models were designed but never produced. Instead, the U.S. Army, along with most of the rest of the world, fiddled around with recoilless rifles for several years.[15]

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[14] *Ibid.*, p. 101.

[15] *Ibid.*, pp. 132-151.

Recoilless rifles are barreled projectile throwing devices that use two or three times as much propellant as conventional rifles to throw a round from a ventilated breech. The only resistance is the air around the breech. No locking or gas-seal mechanism is used. But rockets, as demonstrated in the old bazooka, were better.

In the early '60s, the U.S. refined the model 72 plastic, pre-packaged, throw-away, anti-tank rocket launching system. Known as a LAW (Light Anti-tank Weapon), the M-72 was considered adequate for a number of years.[16]

Japan had few main battle tanks in WW II. Perhaps for that reason, their emphasis on anti-tank warfare was minimal and mostly ineffective. Significantly for modern citizen defenders, the Japanese placed great emphasis on tank hunting parties. These specially organized, specially deployed men used satchel charges, command-detonated mines and special snipers to attack our tanks.[17]

As a result, American tankers were forced to carry along great numbers of infantry and to ride buttoned up, greatly obscuring their view in already tight island topography. Japanese soldiers, in turn, exploited this situation by deploying Lunge mines fastened to six-foot poles. Explosives from these devices destroyed Sherman tanks and also blew the user to tiny pieces.

Japanese sappers were similarly clever about burying and disguising large artillery rounds with nose detonators aimed upwards in the middle of roads and tracks used by our tanks. In some instances, suicide soldiers sat with hammers, cradling artillery rounds in spider holes, waiting for tanks. Because few tanks were used in that theater, loss of any was considered material. Japanese soldiers used suicide tactics because they had nothing else.

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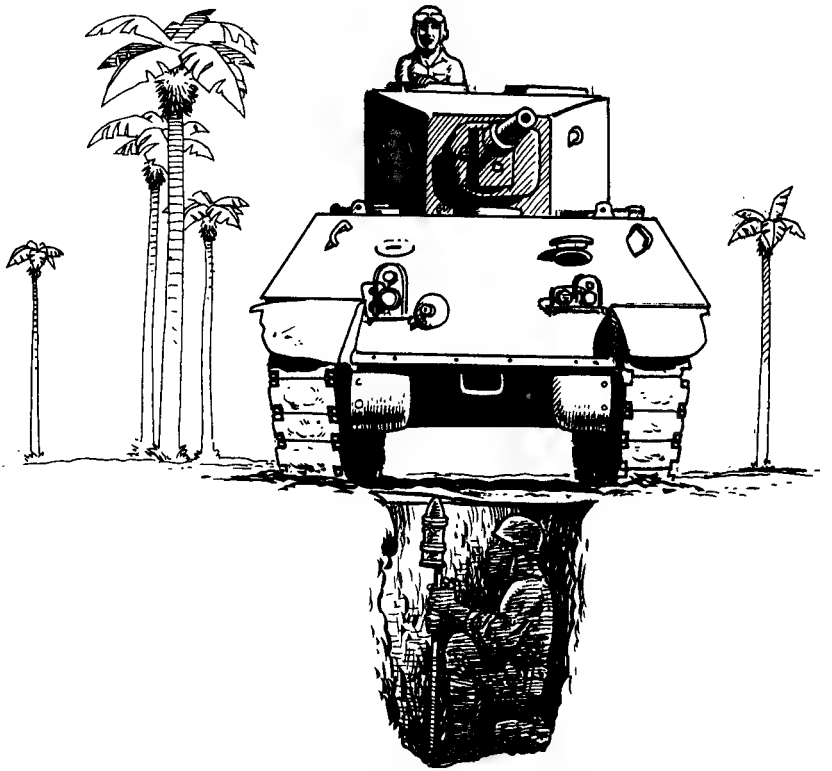
[16] *Ibid.*, pp. 104 & 186.

[17] Weeks, John. *Ibid.*, pp. 116 & 117.



During the Second World War in the Pacific Theater Japanese sappers waited in spider holes with artillery rounds until a tank drove by which they could attack. *(Illustration by Spain Rodriguez.)*

Modern tanks are mostly immune to light infantry, portable rockets of the M-72 LAW genre. This is certainly true on a one-shot kill basis. As a result, the world's armies have gone over to heavier, longer-ranged, tube-launched, optical-tracked, wire-guided missiles, or "TOWS." These are enormously powerful, very effective weapons, especially when mounted on helicopters or armored personnel carriers. On the ground, a TOW weighs about 70 lbs.; forty of this for the missile alone.[18]

In skilled, practical hands, TOW-type missiles are deadly tank killers and bunker busters. But they require trained operators to use them. During the 1973 Israeli tank battles, Jewish tanks were reported to have had numerous TOW wire lines from missed missiles draped across them as they ranged across the battlefield, having been overfired by Syrians using Russian TOW missiles.[19]

A TOW's range is about 2,000 meters, and penetration of tank armor is 100 percent, no matter at which angle or range a strike is made.

Iraq and Desert Storm were ideal tank country. Saddam stupidly deployed his forces using WW I tactics. Citizen defenders can learn little from this action, except perhaps — in large, open-country tank battles with lots of maneuvering room and air cover — to leave the fighting to well-armed professionals.

Grozny, in Russia, on the other hand, where over 100 armored vehicles were taken out by a citizen militia, according to CNN, provides numerous lessons. Losses to the central authorities resulted from wise, brave citizen use of basic improvised methods *and* prolific deployment of sophisticated captured Russian anti-tank weapons. In other words, Grozny's citizen soldiers knew about both

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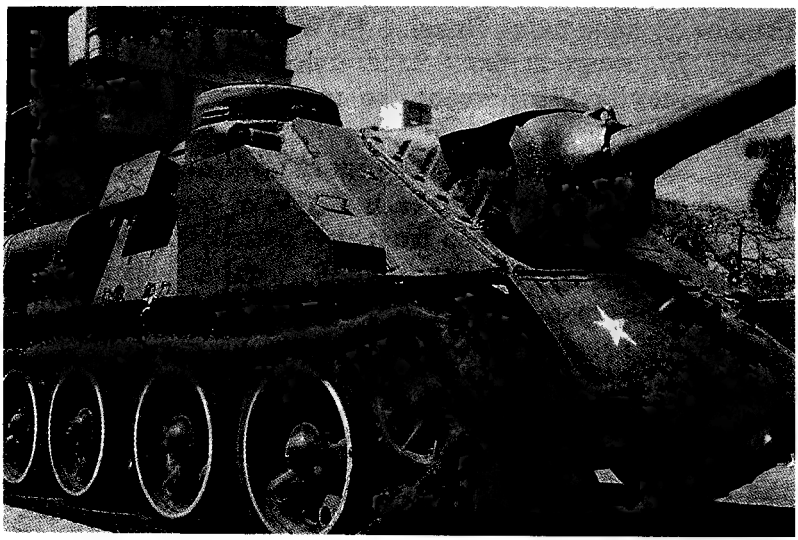
[18] *Ibid.*, pp. 152-169.

[19] *Ibid.*, p. 169.

RPG-7s *and* Molotov cocktails. Russian generals erred grievously by ordering their armor into an urban environment where maneuvering room was restricted.

History teaches us there are but three ways to defeat a tank. Stick it in an obstacle, hole it, or burn it. Most armor in Grozny was burned because that is still the easiest method. In that regard, nothing much has changed in the last eighty years.



Russian tank Fidel Castro reportedly used during action at the Bay of Pigs.

Chapter Four
Killing Tanks

Universally, experts in tank warfare agree that well-prepared, smart and brave civilians contemplating the destruction of a single tank can achieve success. Yet, as Marine Major Tim Stevens says, "If it comes to a major pitched tank action involving dozens of tanks out on flat, dry ground at great distance with room to maneuver, there is little chance for the amateur."

Tanks, government manuals point out, are little more than great, clumsy, unwieldy cans with people in them.[1] Tanks are terribly far-sighted and are so complex that much of a tank crew's training involves maintenance and repairs. It is even possible for our newest tanks, used only in live-fire demonstrations, to break down traveling to and from the training field![2] Current army field manuals

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[1] Citizens seriously contemplating this business should try to locate a copy of the obscure, yet extremely informative government publication, *To Catch a Tank — Big Game Hunting Made Easy*, published by the Anti-armor Board of the U.S. Army Infantry, Fort Benning, Georgia 31905. Information presented conforms closely as possible with Department of the Army Doctrine.

[2] Dunnigan, James. *How to Make War*. New York: Quill, 1983, p. 55. This is another somewhat arcane reference citizen defenders must read

pertaining to urban warfare point out that if tanks are used in cities, it is quite likely that defenders will be dug in *below* the reach of most tanks' main and coaxial guns. Keep in mind that the .50-caliber and the loaders' machine guns can still be effectively deployed without exposing the tank commander or loader, fatally endangering citizen defenders who are dug in below ground level.

Lest one become discouraged over not being able to engage tanks in full battle, recall the legendary Finns before WW II. They did not actually engage Russians in tank battles. They simply and effectively trapped Stalin's iron monsters on narrow, snowbound roads where they were hemmed in by deep marshes, rocky bluffs and frequent lakes. It was in these circumstances that the plucky, resourceful Finns cut up the Red Army's columns into little pieces. They isolated the armor away from supporting infantry and from other supporting tanks. Even relief columns were cut off, chopped up into little segments and then destroyed piecemeal.[3]

In this day and age, isolating a tank or tanks for destruction is somewhat more difficult. Modern tanks have better radios, as well as the ability to penetrate wooded areas, traverse some rivers and steep rocky country, and, in a few cases, to maneuver off of boggy ground. If properly deployed, they will bring their own air and ground support, adding to the complexity of their operation and to the complexity of workable plans required to destroy these tanks.[4] Abrams tanks will climb over four-foot cement walls and can cross nine-foot-wide ditches. Depending on

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closely to discover structural and engineering flaws in modern heavy weapons systems.

[3] Condon, Richard W. *The Winter War*. New York: Ballantine Books, 1972.

[4] Miller, Robin K. U.S. Army Aviator (Retired). Carmel, CA: January 1995. Interview.

density, they can plow right through a forest stocked with six-inch trees.[5] Yet it is a fact that tanks get stuck frequently, and tank crews will spend a great deal of time using other tanks, tank retrievers and plain old spade work getting unstuck.

As evidenced by the many small wars raging around the world, arrogant politicians will often order tanks into cities or over country where they can be killed. Non-tankers have little concept of how some terrain works to tankers' severe disadvantage. Tanks get stuck very easily. Seasoned tankers point out that it is completely impossible for tanks to operate on most terrain in the U.S. for most of the year.[6] A tank that tries to cross a wet cornfield in winter, for instance, will sink out of sight. They can't cross extended marshes, rocky crags or most rivers. Rural roads they operate on will soon be cut to mush. Alert defenders who can destroy just one tank in a group will throw fear into remaining tank commanders. This will also provide a psychological lift to those on the defense.

Basically, civilians battling tanks must cut these tanks off from their support, fix them in place in a temporarily isolated spot and then quickly bring relatively simple forces to bear that will destroy the targeted tank. It isn't as complex as one may initially suppose, but great ability to improvise and adjust will be required.[7]

Master Sniper John Plaster reports in his benchmark study, *The Ultimate Sniper*, that super-accurate sniping is a cornerstone of official Swedish military tank defense.[8] The first attempt is to take out the tank driver who, if he expects *no* danger, will comfortably ride along with his

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[5] *U.S. Army Technical Manual TM 9-2350-264-10-1*, pp. 4, 6 & 17.

[6] Dunnigan, James. *op. cit.*, pp. 46-60.

[7] *To Catch a Tank*. U.S. Anti-armor Board, Ft. Benning, Georgia.

[8] Plaster, John. *The Ultimate Sniper*. Boulder, CO: Paladin Press, 1993, p. 357.

head out of the hatch. Tanks are terribly hot in summer and as cold as stone mausoleums in winter. Tank drivers will risk this exposure rather than relying on vision blocks and periscopes to guide their machines. When tankers do button up, sniper teams attempt to crack the visi-prisms through which they look. Visi-prisms on the turret are tough to hit because of their large number and the fact that turrets on American tanks swing rapidly, Plaster says. But just cracking the blocks the driver uses will force him to stop to install replacements, giving snipers and sappers additional opportunities.[9]

Once a driver is hit and the tank careens off in an erratic fashion, tank commanders may be forced to further expose themselves. Because commanders are more visible when standing in the turret hatch, they are sometimes the first sniper targets. Experts caution that success is not possible unless one can get the driver first.[10] Modern tanks are equipped with dead-man throttles, and dead drivers can be replaced from the turret, but not without stopping for several fateful minutes.

Engaging tanks with sniper fire, especially if one can put a sniper wolf pack of six or eight together, has a great deal of charm. When fired upon, chances are that drivers and commanders will not hear single sniper shots over the roar of their machines. Unless snipers are very careless, they will not be seen.[11]

If one could catch tanks moving towards a target in an unbuttoned fashion, tank drivers could be taken out from positions in trees, narrow roadcuts or even by hit teams riding motorcycles. In some cases, a shotgun would do the work. Just be careful to take out the last tank first, doing

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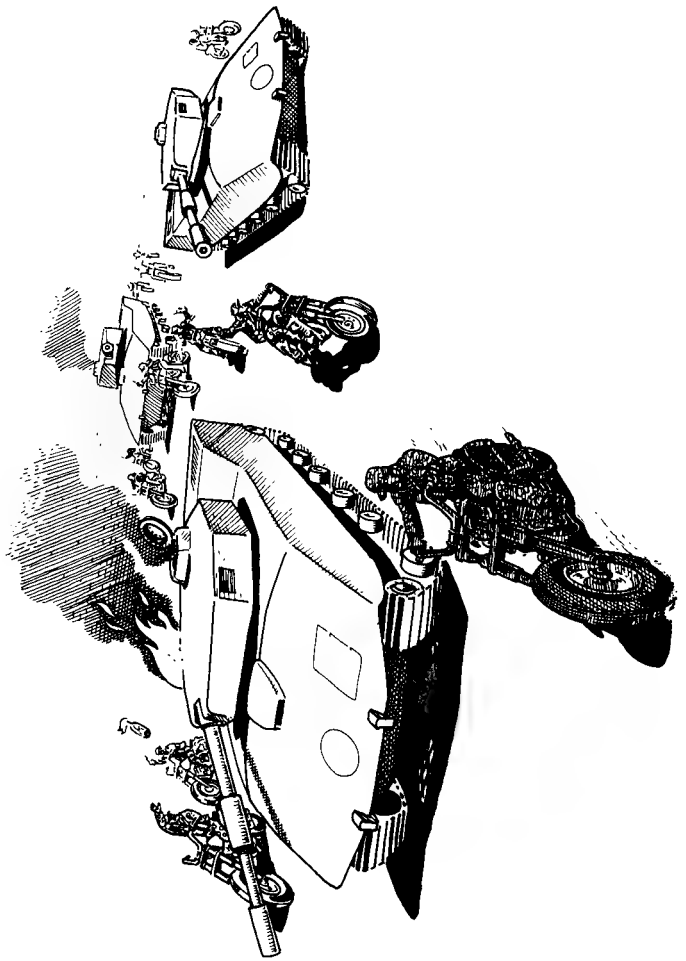
[9] *Ibid.*, p. 203.

[10] Dunnigan, James. *op. cit.*, p. 56.

[11] Plaster, John. *op. cit.*, p. 357.

so swiftly with great enthusiasm before accompanying helicopters and APCs can report your presence. APCs are handled somewhat similarly to tanks; a separate chapter follows.



Militia on motorcycles using large Molotov cocktails have successfully taken out main battle tank. (Illustration by Spain Rodriguez.)

Buttoned up, no tank weapon can fire effectively inside of 60 feet. Inside of ten yards tank crews are completely blind. Tanks separated from supporting infantry and slowed by difficult terrain can be mounted by clever, bold defenders. Destruction of even the most modern tanks is possible once one is on board. Defenders at Grozny demonstrated this fact graphically. Modern tanks all have periscopes and sighting prisms. Russian tank turrets are under-powered compared to U.S. tanks and move relatively slowly. In Grozny, according to CNN, some defenders successfully coated these viewing ports with paint, effectively blinding the tank. Abrams' experts claim that it is possible to temporarily blind their tanks with paint splashed on the "dog house."[12]

Although noise in and around tanks may preclude the crew from knowing they are falling under sniper attack, one must be relatively clever when going about this work. At only ten mph at 500 yards, snipers will have to aim a full nine feet ahead of their target! Rounds that splash harmlessly off the armor plate will quickly alert the crew. Plaster suggests placing snipers in camouflaged positions ahead of the tanks so as to minimize aiming and lead calculations.[13]

If hostile fire is suspected, the crew's only alternative is to button and speed up. The former action will, as mentioned, severely restrict the tank crew's ability to see danger close in around them, and the latter might quickly leave infantry support behind, further exposing the tank to potential destruction.[14] Increasingly, this vital support is carried along in APCs and helicopters. Taking out a driver

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[12] Boise, Idaho: U.S. Tank Commanders' School, January, 1995. Conversations with instructors.

[13] Plaster, John L. USAR (Retired). St. Paul, Minnesota: January, 1995. Personal conversations.

[14] *To Catch a Tank. op. cit.*, p. 6.

on hilly, rough terrain may put the behemoth at the bottom of a ravine, giving defenders a great psychological lift even if the bad guys have 20 more replacements.

Be certain that all defending snipers coordinate their efforts carefully and that each man has similar information and objectives. Carefully determine the range to the target. Know how long the particular tank being engaged is, so that good, accurate lead calculations can be made. Great attention should be paid to proper camouflage, especially against those observing from above in helicopters. Shots must be taken over a small canvas groundcloth, minimizing telltale muzzle blast, dust and debris. Super intelligent use of terrain should be undertaken, wherein tanks are lured or herded into situations that greatly disadvantage them.[15]

In Afghanistan, rebel sharpshooters reportedly cut the antennas from Russian officers' tanks. This tactic caused great consternation among the Russians, who only installed radio transmitters in an estimated one in ten of their tanks. Most of their tanks were intentionally fitted only to receive orders, now made impossible because the commander's antenna was swept away by sniper fire. U.S. Abrams tanks carry extra antennas in their baggage, 100 meters to the rear.[16] It is impossible to know ahead of time whose tanks readers will be facing. Flexibility in adjusting one's tactics to specific equipment is again of great importance. American tanks have auxiliary radio antennas because loss of radio contact among attacking tankers can be a serious problem.

Yet the loss of an antenna does not equal the loss of that tank. Antennaless tanks can still fire and move aggressively. Producing even a few casualties among supporting

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[15] *Ibid.*

[16] U.S. Tank Commanders' School. Gowen Field, Boise, Idaho: January, 1995.

infantry using one's snipers will tend to separate tanks from their infantry support, further blinding the tank crew.

During the Korean conflict, Marine engineers took out Soviet bloc T-34/85 tanks using heavy construction equipment on several occasions. Don Huskey, a Marine officer who participated in one of these actions, suggests hitting enemy tanks from short range from the side with Caterpillar D-7- or D-8 sized bulldozers. D-9s would work best, but are not nearly as common as the smaller machines which, the officer says, will work fine.

"Will this construction equipment take out a modern Abrams tank?" I asked.

"I believe they would roll it on its side if the bulldozer operator was skilled," Huskey replied. "Hit the guy going as fast as possible, touch the tread brake slightly in the direction of his travel, simultaneously bringing the blade up. You won't destroy the tank but you should be able to tip it over on its side, leaving it helpless to be dealt with later."[17]

The same fellow recommended using other heavy construction equipment such as backhoes, drag lines and heavy forklifts, to take out tanks or to construct tank traps. However, he could not recall a single instance when deployment of these tools had actually been done successfully, other than the construction of tank traps. Practically speaking, these machines are not nearly as common and universal as simple bulldozers. Backhoes could be used to dig traps or to flood areas, especially in cities or in rough terrain. If one could manage to dig a new river channel or swampy area with a backhoe, one could eventually use it to trap marauding tanks.

Any time a tank must cross a bridge it is at risk. In Bosnia, according to *The Economist*, fighters weakened but

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[17] Moscow, Idaho: February, 1995. Personal conversation with author.

did not destroy bridges, in hopes that an enemy truck or tank would collapse the trap-like structure. Modern Abrams tanks ford water to five-foot depths, but will use a bridge if one is available.[18]

In Beirut, both Syrian and Israeli tanks were in constant danger of being overtaken by militiamen on motorcycles carrying small arms with which they dispatched drivers or, more ominously, Molotovs or portable flamethrowers which were used to stall the engines. It was a deadly tactic that experts claim was quite successful.[19] Drivers of modern Abrams tanks claim that water from an especially severe downpour will leak through the hatch, suggesting that gasoline from a large Molotov might also leak into the driver's compartment and/or the turret. Positive air pressure is supposed to prevent liquid leakage, but actual users report otherwise. Abrams tanks carry very sophisticated, state-of-the-art fire-suppression equipment. Fires in the turret are extinguished with a single instantaneous blast of fire suppression gas, which supposedly does not "hurt" the crew.

Even out in open areas, if one can either seduce a tank into rough terrain or attack a formation suddenly from behind with motorcycle-borne flamethrowers or Molotovs, some of them can be killed. Even attackers on foot can effectively burn a tank, stalling it. But defenders must be smart enough to separate the tank from its support infantry and lure it into rough terrain, slowing its forward movement. Only then are they able to climb on board, or approach from the side in the case of the Abrams. Keep in mind that it takes a lot of fire to overcome the on-board fire-suppression equipment modern tanks carry.[20]

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[18] *U.S. Army Technical Manual TM 9-2350-264-10-1.*

[19] Shachar, Ezekiel. Israeli Army Commander (Deceased). West Chicago, IL: November, 1991. Interview.

[20] *Ibid.*

EFFECTIVE RANGE

TO&E TANK BUSTERS	METERS	WILL KILL OR DISABLE
DRAGON	GREATER THAN THE 90R	all known tanks
TOW	3000	all known tanks
106RR	1100	all known tanks
90RR	400	all known tanks
M203	175	APC'S (HEDP Ammo)
Flamethrower	25	all known tanks
M72	200	all known tanks
Thermite grenade	Contact	all known tanks
AT mine	Contact	all known tanks

OTHER AVAILABLE TANK BUSTERS

40 lb shaped charge	contact	all known tanks
15 lb shaped charge	contact	all known tanks
C4 Pole & Satchel charges	contact	all known tanks
Flame fougasse	contact	all known tanks
Molotov Cocktails	15-0	all known tanks

Reprinted from page 4 of U.S. Publication *To Catch A Tank— Big Game Hunting Made Easy*, published June 30. 1972.

Some armchair theorists claim that a modern tank cannot be taken out with fire. But tank design engineers affirm that, given enough fire, any engine will be starved of the oxygen it needs to run. "Ask an Abrams tank commander if we can try a large Molotov on his tank," one Abrams design engineer responded. Both Russian T-80s and Abrams are powered by turbine engines that suck up an incredible amount of air to keep operating.

"Also, how do we know we will be dealing with Abrams tanks?" the engineer continued. "There are an incredible number of tanks in the world, and most of them are not Abrams."[21] Older tanks are proven tinderboxes. During WW II, armor commanders referred to their Sherman tanks as Ronsons, referring to cigarette lighters that always light on the first strike. We defeated the Germans because our supply of Shermans was seemingly inexhaustible, not because they were especially durable.[22]

Flamethrowers, with their 150-foot reach, give defenders a bit more flexibility when dealing with tanks, as opposed to Molotovs with which one must get right in along side. Flamethrower advantages notwithstanding, common citizens may find it cost-prohibitive to put sufficient portable flamethrowers together to adequately deal with the menace at hand.[23]

Since the second or third time tanks were used in warfare, it has been common to channel them into rough terrain or to facilitate tank killer teams' advancement on them using smokescreens.

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[21] Personal conversations with one of our nation's top armor engineers who was part of the Abrams design team and who obviously wishes anonymity.

[22] Forty, George. *M4 Sherman*. New York: Blandford Press, 1987, pp. 7&8.

[23] *To Catch a Tank. op. cit.*, p. 4. The chart contained in this official U.S. publication is reproduced on page 70 for readers' benefit.

Modern tanks have sights that will see through most smoke over great distances, but these electronic marvels are worthless in close to the machine. Depending on terrain, wind patterns and the nature of one's threat, properly used smokescreens can still be decisive against tanks. Most tanks carry smoke-grenade launchers, and many use internal smoke-generators as a defense against infantry and other tanks.[24]

Molotovs are not as obvious when deployed in smoke, unlike flamethrowers, which are not discharged until one is up on the target. Brightly lit Molotovs usually indicate that an attack is in process.

Flamethrowers may be in short supply, but Molotovs are a commodity. These are all the Finns and defenders of the Warsaw Ghetto had. At the times they used them, even basics as simple as thickening one's fuel were not understood. The entire concept of using small, portable gasoline-engine-driven flamethrower pumps was technologically impossible until relatively recently.[25]

In cities, from bridges and in steep terrain, Molotovs can be safely dropped from above onto tanks. Experts warn, however, that if the drop is more than 30 feet and/or the tank is moving faster than 10 mph, making a strike on the target is more random chance than skill.

French resistance fighters spent hours waiting on bridges above railroad tracks for equipment and troop shipments. They safely dropped Molotovs onto Nazi tanks moving by rail on flat cars. Reportedly, damage to German tanks was modest, but it was an easy play, costing — according to French records — no lives.[26]

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[24] Dunnigan, James. *op. cit.*, p. 53.

[25] Benson, Ragnar. *Breath of the Dragon*. Boulder, CO: Paladin Press, 1990.

[26] Ehrlich, Blake. *Resistance. France 1940-1945*. Boston: Little, Brown, 1965.

Some military texts suggest placing claymore mines on poles or in trees facing down towards passing tanks. Detonation is accomplished by stringing a trip wire across the road high enough to avoid passing truck traffic but not so high that a tank's radio antenna would miss triggering the device. Some government-built heavy claymore-type devices can penetrate tanks from above, but these are generally beyond the ability of home mine builders who must be content with using little claymores to take out the unsuspecting tank commander and driver.[27]

Keep in mind that tanks must usually be slowed significantly by sniper fire, terrain or smoke, before hand delivery of Molotovs can ever be effective. Small, quiet, easily maneuvered motorcycles operated by skillful personnel sent out in reasonable numbers are another matter. Out in open country, skilled operators can overtake and out-maneuver any tank.

One's purpose is not to launch a major tank battle that one is certain to lose, but rather to take out two or three supposedly invincible enemy tanks. Upon knowing this was done by lowly civilians, the morale of intruding troops and officers will plummet.

Out in the countryside or in cities, modern tanks have been safely taken out on numerous occasions using simple shaped flamethrowers. The trick is to entice one of the great steel monsters into the range of what is usually a stationary weapon. Set these weapons up in places where tanks are likely to travel, especially in cities. They are either command detonated using hard wire, or detonated by using a trip wire similar to those deployed with claymores.[28]

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[27] *Directional Fragmentation Mines*. Graz, Austria: Graz Dynamit Nobel. Sales Brochure.

[28] *To Catch a Tank. op. cit.*, pp. 22-24.

Both German and Finnish soldiers made extensive use of saddle-and-pole charges. Reportedly, numerous Russian, English and American tanks were rendered useless with these devices during WW II. Pole charges are 2.5-lb. blocks of high explosive tied to a pole which is stuffed down the barrel of the tank's main gun. Just the muzzle blast from a modern tank's main gun will kill any soldier within 60 feet of the front of the tank. How these men got these charges into the tank's gun barrel is unclear. Saddle charges are probably a better deal. Finnish engineers tied two blocks of high explosive together with a three-foot rope.[29] They threw these so that they wrapped around the barrel of a stationary tank. When detonated, the tank's main gun became just another piece of scrap steel. This tactic was used on tanks trapped in small clusters on Finnish roads, but it might be viable out in the country if one could both slow and then get up on an enemy tank.

Modern military field manuals relative to urban warfare suggest that tanks should initially be used in stationary (fixed) positions when assaults on urban areas (villages, towns and especially cities) are made. By so doing, these tanks can bring incredible firepower to bear on defended strong points within the cities. They also fix themselves in place, providing citizen sappers and snipers with wonderful opportunities.

Tanks in a fixed-fire support position will be surrounded by support personnel, constituting great risk to attackers. However, properly organized and deployed citizens may find they have destroyed a tank or two, and, as a bonus, redirected a planned attack on an urban area.[30]

If one can find a reasonably firm base from which to fire, eighteen pounds of military-grade explosive will cut the

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[29] Condon, Richard. *op. Cit.*, p. 4.

[30] *Infantryman's Guide to Combat in Built-up Areas.* U.S. DOD Publication, Reprinted by Paladin Press, Boulder, CO, 1994.

tread from an Abrams tank. This explosive can either be home-manufactured C-4 or reclaimed explosive from dud or captured artillery rounds.[31]

Tim Stevens, a now-retired Marine major, had personal experience tipping over a Russian T-72 tank in Iraq, using a barrel (55 gallons) of ammonium nitrate and fuel oil. He and his crew carefully buried the barrel in a dry area along the side of a road where tanks commonly pulled over to refuel. After several long days waiting, a tank finally drove on top of his huge mine. He radio detonated the charge from about 600 yards. Because the explosive was so slow, it did not break any significant pieces from the behemoth. The tank was simply thrown over on its side, he said.[32]

Stevens and his men allowed the tank-crew members to run off. Snipers then kept would-be salvagers away. The enemy either did not know about their disabled tank, or did not have a tank retriever available to pick it up. That night the tank was properly stripped of weapons and burnt.

Stevens proved that seven hundred pounds of fuel-soaked ammonium nitrate detonating at a relatively slow rate of 9,000 feet per second was capable of flipping a large tank. As a result of his success, the fellow urges neophyte tank killers to wait till one tread of the machine is firmly over the explosive's barrel, before attempting detonation. "From a range of even five feet, I doubt if the tank crew will even feel the blast," he says.

Stories abound concerning Hungarian and Czechoslovak freedom fighters who used China plates as fake mines to stall Soviet tanks. These tales are almost certainly apocryphal or, at best, exaggerated. China plates look different than mines, and even unbuttoned drivers cannot

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[31] *To Catch a Tank. op. cit.*, p. 4.

[32] Personal conversation with author, December, 1994.

see sufficiently well ahead to avoid small China plates in their path.

It is known with certainty that freedom fighters have used a precious few of their operational mines from a limited supply to take out lead tanks. They then dug a number of round holes in a pattern, giving the impression that literally dozens of additional mines were installed. In reality, all the drivers were looking at were empty, freshly dug holes of approximately mine-size. Whole tank columns were stalled using this tactic, or they were pushed into terrain not of their choosing. The device *only* worked after they took out the first two tanks with real mines.[33]

Bosnians in the former Yugoslavia, according to CNN, chronically short of all types of military supplies, including anti-tank mines, and needing to defeat Serbian armies, developed a sort of command-detonation anti-tank procedure. Young Bosnian military engineers fastened several blocks of explosives to a large, flat board. They were laid out in a pattern that properly placed the charges at tread width so that everything went off under the tank's tread. Triggers were simple pressure-detonating-types of home-workshop design, in many cases. Fighters patiently waited along the narrow, mountainous roads over which any tanks were forced to operate.

At the last minute, as they lay fifty or sixty feet away in concealment, they used an attached rope or wire to pull the sled-like, explosive-laden board across the road under the tank's tread. Even with some infantry present, the device worked well.

Some shots on the downhill side of the road both cut the tank tread, and also blew away enough road bed to cause the tank to fall into the ravine below. If these fighters were successful in driving off other supporting tanks and

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[33] Weeks, John. *Men Against Tanks.* London: David & Charles, 1975, p. 130.

infantry, they acquired a bounty of explosives and firearms from the fallen tank.[34]

Taking a tank out by detonating an explosive device under it, without being certain to get a tread, will take about 45 lbs. of military-grade explosive. It must be explosive that detonates in excess of 26,000 fps! Depending on one's circumstances, this may not be out of the question. Clearance under the belly of an Abrams is from 16.5 to 18.5 inches.[35,36]

We asked all of the experts if a .50-caliber round, as fired from a heavy sniper rifle, would damage a tank tread. "Smallest round that will work is a 20-mm cannon," they universally replied. Given their common occurrence in helicopters and fixed-wing aircraft, scrounging such a gun and some ammo may be possible. While a 20-mm cannon won't penetrate a tank's armor, rounds fired from modest ranges into the tread or idler wheels could be effective. All modern tanks have armored tread skirts. Any effective fire must be directed from modest ranges, which makes this a suicidal mission if infantry is present or if one misses.

Cramming a man-portable chunk of steel into the tread of a tank under the idler wheel is *not* effective. Even two very dedicated fighters cannot carry enough steel to faze the beast.[37]

One Israeli "thought" he recalled that chunks of railroad iron were mounted on Jewish farm tractors. They were run into the sides of Arab tanks during the defense of Jerusalem in 1947. But these were not modern, heavy tanks, and they were not man-portable chunks of iron, either. The fellow was unclear as to whether this was just

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[34] *To Catch a Tank. op. cit.*, p. 27.

[35] *Ibid.*, p. 28.

[36] *U.S. Army Technical Manual TM-9-2350-264-10-1.*

[37] U.S. Tank Commanders' School. Gowen Field, Boise, ID: January, 1995.

an idea, an idea that was tried, or if any tanks were actually killed.

As a general rule, planning to jam something into a tank tread to stop it is not workable. The only exception is placing a ten-pound charge of C-4 between the track and a drive sprocket. This can be done while the tank is either parked or moving very slowly. Detonation will definitely crack the sprocket, and may cut the tread.[38]

Some Eastern European fighters killed older Russian tanks by swinging a heavy piece of railroad iron into the side or from the rear. Unless one is operating in an ideal urban setting, this device is not practical. To work, enemy tanks must be prowling narrow side streets and alleys where traps of this nature can be deployed and where crews are especially alert. Other devices are more practical under these circumstances.

Some suggested anti-tank methods are improbable to the point of working only in a few ideal places around the world. A retired Filipino army officer swore up and down that catching poisonous snakes and throwing them into a tank or other vehicle would be effective.[39] I thought the snakes would crawl through cracks and escape. He said that most tanks in the Philippines were sealed so that tear gas could be used for crowd control. He said that whenever the NPA (New Peoples' Army) came across a snake, they caught it and saved it for "appropriate" future use.

American training manuals claim that tanks on hard surfaces are very clumsy and prone to slipping and sliding. Use large quantities of animal- or mineral-based grease on curves or hills, causing tanks to spin out of control or even slide into water hazards or off the road into a crevasse, they suggest. At a minimum, tanks on slick surfaces will be

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[38] *To Catch a Tank. op. cit.*, p. 4.

[39] Mindanao, Philippines: 1982. Conversations with author.

slowed, but one can only wonder where the sufficient quantities of grease needed to be successful would come from.[40] Yet tanks maneuvering on mud noticeably slip and slide. Huge weights gain a momentum of their own, carrying the beasts into strange places when driven too fast on steep hills or sharp curves by young soldiers.

Czech resistance fighters achieved some success against German APCs by carefully rigging wires across frequently traveled roads, at precisely head height. German machine operators were killed or maimed by wires that hit them in the head or shoulders. Even a strike high on a helmet would have been devastating. No reports exist indicating whether this tactic was successful on tanks, or if it had much total impact on the Nazi war effort.[41] Periscopes and protruding hatch covers probably preclude using this trick against most models of modern tanks.

Those fortunate enough to devise a method of sneaking up on parked or stalled tanks who want something more positive and immediate than snakes can throw a claymore into an open hatch, place a thermite in the main gun barrel or, if they can get into the driver's or gunner's compartment, place a claymore on the controls. A thermite charge in the gun's breach will also incapacitate a tank with little noise or visible commotion. Abrams tanks, for instance, have an electrical hookup box under a spring-loaded armor plate to the rear right, just ahead of the fuel filler opening. A thermite blast there stops the beast cold. It will remain stopped until extensive repairs are made, or the tank is destroyed by other means.

In Kuwait, American GIs dumped five-gallon cans of diesel fuel into captured tanks, and ignited them. Kuwaiti salvage people just cut up what was left for scrap steel. A thermite charge, or burning fuel oil in the engine or turret,

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[40] *To Catch a Tank. op. cit.*, p. 34.

[41] Ehrlich, Blake. *op. cit.*, p. 144.

will similarly perform wonders, stilling the heart of these great steel beasts. But quantities of fuel in and around the turret compartment must be sufficient to overpower very efficient fire extinguishers.

Any of these devices costing at most $20 apiece will totally destroy a three-million-dollar piece of equipment. Of course, the real trick is getting up on a parked, guarded tank. Even if one wore a Ghillie and took 24 hours to approach, the end results would be insignificant. Perhaps one or two tanks might be killed, at great danger to the defender. This ain't the movies, and one should not overestimate the damage one could do.

As mentioned in the previous chapter, tank crews spend an incredible amount of time outside their machines getting them unstuck, pulling routine maintenance, making needed repairs, reloading with fuel and ammo and just stretching their legs. Trained tank crews are very difficult and expensive to replace.

Well-equipped, careful sniper teams can produce tremendous casualties among the crews of tanks during the approximately eight hours per day when they must be working on their machines.

Sniper fire into tank-gun ammo, a tactic often seen in movies or described in novels, will not detonate it. These explosives are too inert to detonate from small-arms fire. Heavy .50-caliber sniper rifles might detonate tank ammunition at modest ranges with solid hits, but I would not count on it. Explosives manufacturers have been successful at "hardening" explosives to an amazing degree. The only viable alternative involves placing more sensitive commercial explosives in with the tank munitions. When hit by sniper fire, these may detonate, carrying the whole mess with it. Like several other tactics, it is doubtful if this one will be practically available to most men of action. Small-caliber rounds fired into tank main-gun ammo,

puncturing the cases, however, will render this ammo unusable.

What to do with a stalled, trapped or stuck tank? Experts suggest burning tires or fuel oil under or around either the tank body or engine compartment. This assumes that the men inside stay buttoned up in anticipation of help. It takes quite a fire to roast these beasts, but it has been successfully done on many occasions. Dump flaming gasoline on the engine, or into the fuel cells, batteries or electrical connectors. The results will be satisfactory.

Modern, fixed-tank ammo generally has an aluminum or combustible-paper cartridge case. These are relatively soft and fairly easily pierced by a sharp object. It is feasible, experts suggest, for those who work loading and unloading or storing tank supplies to sabotage this ammunition. WW II accounts of tank battles record great numbers of incidents of main-gun misfires occurring, to the great discomfort of crew members.[42]

Carefully open the cardboard tubes in which these rounds are shipped and pierce the case with a veterinarian-type syringe with a number 18 needle. Inject at least 25 cc of diesel fuel or, if it is available, acetone, into the cartridge. The performance of treated rounds will vary from complete duds to completely erratic behavior. Some rounds may even "stick" in the breach of the main gun. Modern 120-mm ammo cases are sufficiently "soft" that loaders are warned about damage when loading, and are easily punctured with a syringe.

Finnish soldiers operating on their narrow, frozen roads started by killing a lead tank using mines, Molotovs or sniping the driver. This dead tank became a road block for those behind. Attempts were then made to take out the tenth or twelfth tank back, trapping a dozen or so on the road. Working systematically, great long forty- and fifty-

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[42] Forty, George. *op. cit.*, p. 72.

tank columns were cut off, segmented and then killed piecemeal by the plucky Finns. This was also the experience of American tankers at the hands of Japanese sapper crews.[43]

Snipers whose positions become known to modern tank commanders are in grave danger, as modern tank guns can reach out to great range with incredible precision. Abrams tanks can hit a two-foot target at 1,000 meters, roaring along at 35 mph! Smoke may help to screen the snipers, but modern infrared sights cut through most of it. Generation of any smoke will immediately alert tank commanders. On the plus side, rough handling throws the main guns out of zero alignment. Older tank main guns used extensively in combat must be re-zeroed at least once a day. Often tank crews do not have the time or ammunition to do this job. As a result, accuracy suffers.

Tanks are hugely handicapped by having to operate over predictable terrain. However, tank commanders *never* know from which place tank killer crews may emerge. Defenders who learn the country will always know exactly which routes tanks will take and can plan accordingly.

Israeli anti-tank units, short on equipment but long on ingenuity and knowledge of their terrain, were frequently successful at disguising deep seep holes and marshes in the Golan Heights area north and east of the Sea of Galilee. Syrian tank commanders bravely drove their tanks down what seemed like solid roads, into the deep mud. Before they could retrieve their stuck machines, Israeli sappers simply blew them away in place.[44]

Old German WW II Wehrmacht training films are available featuring actual footage of Russian tanks being taken out by German engineers. Even then, the basic

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[43] Ibid.

[44] Shachar, Ezekiel. *op. cit.*

concepts of tank killing were well established. Modern U.S. Marine manuals teach that killing tanks is easy and fun.

"Don't panic," the old sarge told his men. Use sniper fire to separate infantry from tanks, and cause tank crews to button up. With visibility restricted, German soldiers could approach the Russian tanks and/or channel them into disadvantageous terrain. Even back then, fire from flamethrowers or from Molotovs, was a major component of tank killing. No internal combustion engine, the old sarge said, can run if it is starved of air by fire. This is very similar to the tactical rules one must use today. The only difference for present-day readers involves the fact that we must home-manufacture most of our own anti-tank devices. Germans made their own Molotovs, but drew their various shaped charges and anti-tank rockets from central stores.

As a matter of record, our military currently considers most man-portable M-72-type anti-tank rockets to be one-shot *ineffective* against modern armor, especially when delivered frontally.[45] As a result, official U.S. government anti-tank information includes many, if not all, of the tactics previously outlined. Reports from Kuwait suggest that seven Abrams tanks were out-hit by hostile T-72 fire. No U.S. tank was the victim of a one-shot kill.[46] Of the 1,955 Abrams tanks in action, only four were disabled. Not one tanker was killed as a result of hostile action.[47]

Great discussion is currently popular among men of action concerning the question, "Could the men and women of Waco have successfully defended against the hostile

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[45] Fialka, John J. "Long Search for Better Bazooka." *Wall Street Journal*. New York: Dow Jones, May 2, 1989, p. 1.

[46] Conversations with Army master sergeants. U.S. Tank Commanders' School, Gowen Field, Boise, ID: January, 1995.

[47] Foss, Christopher F. *Jane's Armour and Artillery 1992-93*. Surrey, UK: Sentinel House, 1992, p. 142.

tanks brought up against them?" Without a great deal of advanced preparation, the answer has to be "No."

They could have manufactured C-4 mines of sufficient size to knock treads off the tanks that overran their retreat, but these mines would have had to have been pre-positioned around their compound. Or, they could have buried a barrel of ammonium nitrate mixture. In the dry Waco climate, this ammonium nitrate mix might have stayed good for a number of years. Yet, like the C-4, this mine would have had to have been pre-positioned.

Waco defenders could also have effectively deployed a D-7 or D-8 bulldozer against government tanks. They could also have effectively placed some large Molotovs on the tanks that eventually burned them out.

However, who in their right mind would have supposed that a church congregation would be contending with tanks? British television reported that U.S. tanks were prohibited from approaching the compound until sophisticated remote sensing devices planted by the FBI, including both microphones and television,[46] indicated that the Waco defenders had no anti-tank devices or viable plans to defend against them.

This is indeed a strange and ominous world. Few residents of Sarajevo, as recently as five years ago, thought they would be battling tanks in their streets. Certainly residents of Waco thought the same.

We will never know whether Ezekiel Shachar's account of the following tank action is apocryphal or not. Shachar died a general, retired from the Israeli army, and lies buried near Robbinsville, North Carolina. The events he described are certainly plausible, and obvious end results support his detailed remembrance of them.

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[46] "Waco, Texas." *The Times* (London). March 27, 1993, p. 1.

"I and my small group of fighters (about 40, including several female drivers) were assigned an area west and south of the Gaza strip to protect," Ezekiel says.

"We had no anti-tank weapons in an arena ideal for tank action. Our urgent instructions were to hold at all costs... at least till air strikes could be organized." Significantly, his orders were not to die in the field, *but to hold*!

His fascinating tale lulled me to quiet listening.[49] I never did ask him which of the wars Israel fought with its neighbors was the one he was referring to, but assumed it was the one in 1967. Perhaps it was the war with Egypt in 1973.

"Up on the Golan we had a few Toyota Landcruisers on which anti-aircraft guns were mounted. But here we had nothing like that. There was nothing more to issue," he said. "Our position was somewhat protected by large minefields that would slow and channel any enemy armor. It seemed unlikely that they would get this far north. Our position was on the main coastal route, but our army — myself included — assumed that the main Egyptian force would try to push straight through across the Sinai south of us."

"For us it was a 'come-as-you-are' war. Our people, mostly from Tel Aviv, showed up on their motorcycles and in a few private cars. Since I didn't have the first anti-tank gun or rocket, and I couldn't assume that no tanks would enter my sector, I started an almost frantic search for alternatives.

"We did have a single two-seat, light plane to use for observation." (Ezekiel couldn't recall if it was an American or German variety.) Probably a German — Storch.

"The plane was in the air 23 hours per day, loitering over the front 100 miles west. They could have flown it farther,

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[49] Shachar, Ezekiel. *op. cit.*

but its radios weren't very good and we were already deep into enemy air space.

"Most of the men in our group were excellent shots, learned from age six or seven firing on the Kibbutz ranges. We had about thirty .30-06 scope-sighted Winchester model 70s purchased and sent over by supporters in the U.S. I divided up the ammunition and everyone set to work tying up sand brown Ghillie suits for the snipers. We also put together about 200 Molotovs, using old gallon bottles left from Coke syrup.

"About 15:00 hours we got a report from our observation plane that 27 Russian tanks (driven by Egyptian soldiers) were headed our direction out of the west. They were moving over particularly broken terrain at about 20 miles per hour. Part of their baggage included extra water, fuel and truck-mounted infantry support. Strange as it may seem, we could actually see the cloud of dust they raised on the far horizon, once we knew what to look for.

"I sent the women into the village to requisition every motorcycle they could find. All were loaded with the Molotovs into a couple of big trucks.

"By 16:30 hours we were on our way out of town to turn the enemy tanks. We knew this country pretty well, so about forty miles west, with only about twenty miles separating us, I started dropping our snipers. Their instructions were to seek out any small hills or prominences in the region and to deploy there. It was fairly obvious to us which routes the tanks were taking. The snipers were to hold their positions at all costs, inflicting as many casualties as possible on the enemy tanks and infantry.

"It was wonderful, lightly broken country, ideal for hiding determined snipers.

"Full dark in that place, that time of year, was about 18:50 hours. We intended to hit the tank column about 30 minutes before dark. First shots were to be taken at about

500 yards, at the tank drivers who were running unbuttoned with their heads exposed. At that range and at the speed they were coming it was a very difficult shot. After these first few shots, they were to engage the truck-mounted infantry, creating as many casualties as possible. The trucks were packed with infantry and were much easier targets.

"Incredibly, the first volley at the tanks created two or three casualties. The tanks drove off crazily or stopped dead, isolated far from the main column. Immediately, all remaining tank crews buttoned and speeded up.

"Subsequent rounds into the infantry-packed trucks produced casualties, consternation and confusion. To this day it is impossible to determine to what extent. I think not many were really hurt. Not enough to influence a battle.

"Egyptian infantrymen bravely dismounted and headed in the direction of our snipers. Mostly, our exact positions remained a mystery. Enemy tanks roared on past us into our rear area. Fortunately, we had a great deal of maneuvering room. Evidently the tank commander wanted to take as much territory as possible, before dark."

Upon seeing their own tanks disappear over the horizon, and taking a few additional casualties, the infantry remounted their trucks in a failed attempt to catch up with the tanks. After dark, most of the infantry remained separated from their tanks, until three days later when, having run out of fuel, water and food, most surrendered. "Their communications and coordination were very bad," Ezekiel said.

"We picked up as many of our fighters as possible, but in the darkness we got only about twenty of the thirty-two who went out. Some are still out there today. We used wonderful little Japanese radios to coordinate," he said.

"Buttoned up during the increasing darkness, some of the tanks were run too hard over tough terrain and broke

down. Some were abandoned by their crews, who began the long walk back to Egypt. Others became hopelessly lost in the dark, unfamiliar country.

"We located all of them by the noise and the tracks in the desert. Our men simply rode up on the isolated, helpless metal monsters three at a time on motorcycles. Again, we had a good idea where the country would channel them!

"We ended up killing or capturing all 27 of the enemy tanks. Some required only very modest repairs to get them going again. Had we wanted to, we could have used these tanks ourselves as anti-tank weapons. But all their operational tanks in my sector were either in our hands or in flames by 01:00 hours.

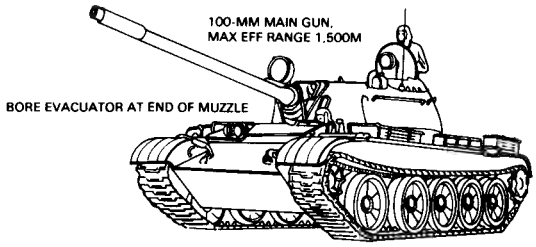
"I lost five men and one beautiful young girl killed by accident when a truck on which she was clinging slid into a hillside. I hated with all my might to go to her family," he concluded woefully. "War is hell and I am supremely happy that I am now too old to fight."

It was a beautiful example of success against tanks based on superior knowledge of terrain, tactics and through improvisation, which is always necessary if one is to be successful in this business.

Readers will recall the surprising accomplishments of the street fighters in Grozny, and the incredible success they achieved against Russian T-72s and BMPs. Remember that these defenders had great numbers of captured anti-tank weapons including rockets and wire-guided missiles. For the purposes of this chapter, we assume that defenders do not have these weapons.

As central government power grows more dictatorial, any reader may suddenly be forced to employ the methods and devices herein outlined. Keep in mind, however, that no citizen defenders will ever fight successful pitched battles with tanks.

T-54/55 MBT USED BY USSR, WARSAW PACK AND THIRD WORLD COUNTRIES



SPACE BETWEEN 1ST AND 2D ROAD WHEELS

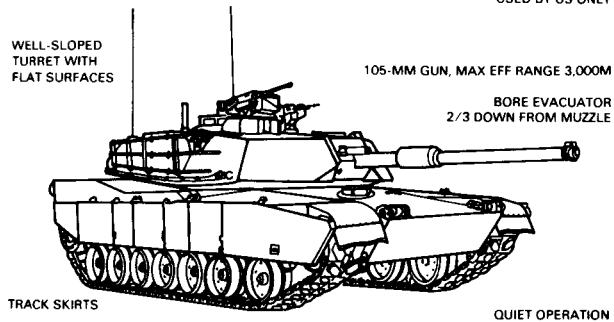
EASILY CONFUSED WITH AMX-30 AND M48A5

T-59 AND T-69 ARE COPIES USED BY CHINA AND IN KOREA

T-69 HAS NEW MAIN GUN WITH BORE EVACUATOR 1/3 BACK FROM MUZZLE

GTA 17-2-13 (32)

M1 ABRAMS MBT USED BY US ONLY

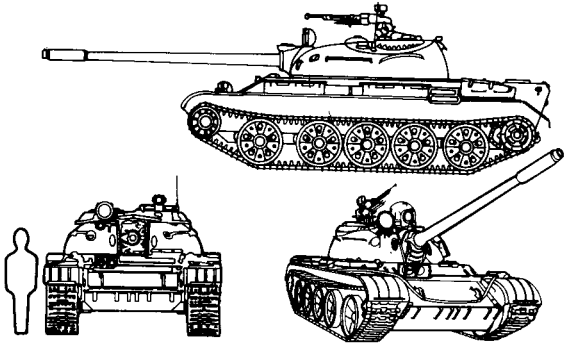


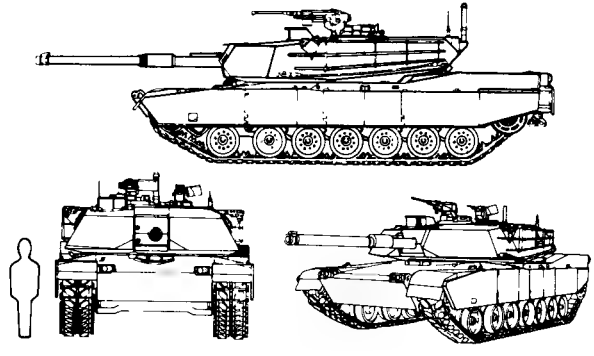
TRACK SKIRTS

VERY HIGH AUTOMOTIVE PERFORMANCE

QUIET OPERATION
DUE TO TURBINE ENGINE

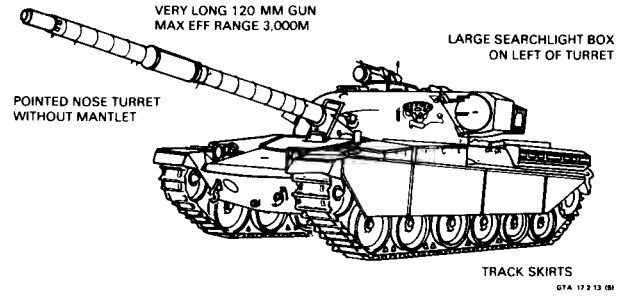
GTA 17-2-13 (33)

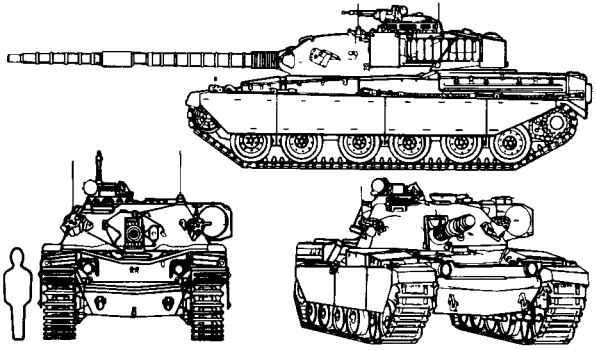




M551A1 SHERIDAN AIRBORNE TANK
IN LIMITED USE WITH US ONLY
152-MM COMBINATION GUN/MISSILE LAUNCHER. MAX EFF RANGE 3,000M
AIR DROPPABLE AND AMPHIBIOUS
CENTURION MBT
USED BY BRITAIN, SWEDEN, S AFRICA, ISRAEL AND OTHERS
ROUND TURRET WITH LARGE STOWAGE BOXES ALL AROUND
105-MM GUN. MAX EFF RANGE 1,800M
ROADWHEELS USUALLY COVERED BY TRACK SKIRTS

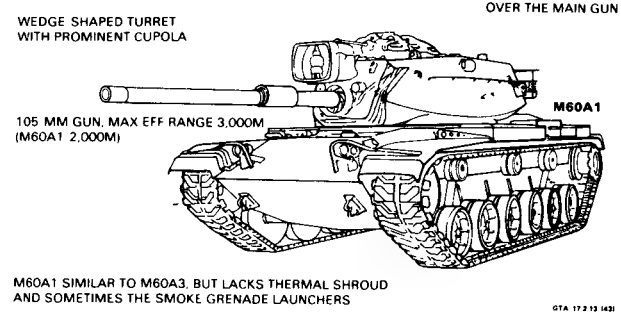
CHIEFTAIN MBT USED BY BRITAIN, IRAN, AND JORDAN

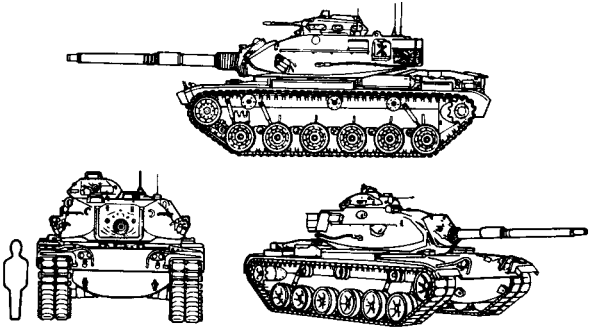




M60A3 MBT USED BY US, ISRAEL, EGYPT AUSTRIA AND THIRD WORLD COUNTRIES

M60A1 ONLY HAS A LARGE RECTANGULAR SEARCHLIGHT OVER THE MAIN GUN



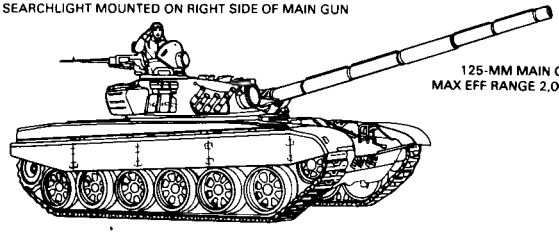


LEOPARD II MBT
USED BY W GERMANY AND HOLLAND
BULKY, ANGULAR APPEARANCE
120-MM SMOOTHBORE GUN, MAX EFF RANGE 3,000M
VERY HIGH AUTOMOTIVE PERFORMANCE
LEOPARD 1A4 MBT
USED BY NATO COUNTRIES AND AUSTRALIA
ANGULAR, FLAT SIDED TURRET
105 MM GUN WITH THERMAL SHROUD, MAX EFF RANGE 2,400M
BOX-SHAPED SEARCHLIGHT
TRACK SKIRTS

T-72 MBT USED BY USSR, WARSAW PACT SYRIA, AND INDIA

SOME HAVE SMOKE GRENADE LAUNCHERS ON TURRET

IR SEARCHLIGHT MOUNTED ON RIGHT SIDE OF MAIN GUN

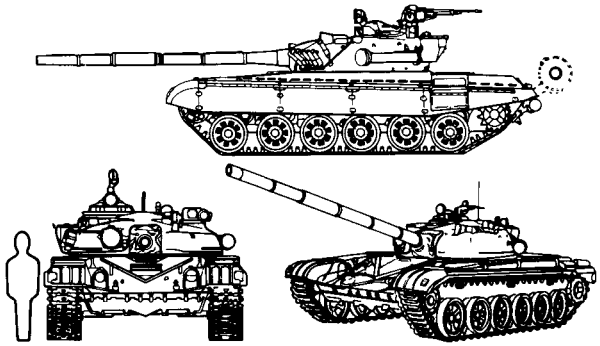


125-MM MAIN GUN,
MAX EFF RANGE 2,000M

T-72 M-1980/1 AND M1981/3 DO NOT HAVE OPTICAL RANGEFINDER OUTLET IN FRONT OF TC'S HATCH

EASILY CONFUSED WITH AMX-30

GTA 17 2 13 (7)

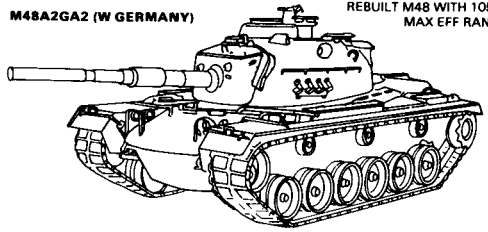


M48A5 MBT USED BY US, ISRAEL, KOREA, WEST GERMANY AND OTHERS

GERMAN VERSIONS HAVE A SQUARED-OFF MANTLET

M48A2GA2 (W GERMANY)

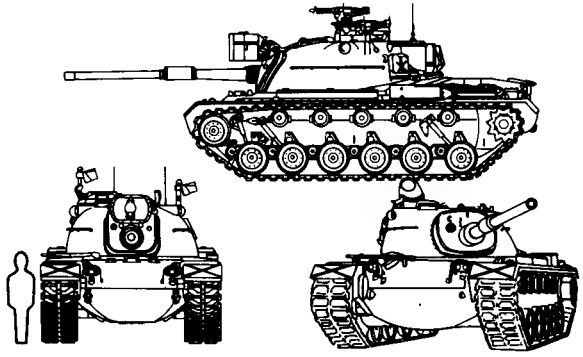
REBUILT M48 WITH 105-MM GUN,
MAX EFF RANGE 2,000M



EASILY CONFUSED WITH T-54 AND T-62

KOREAN REBUILDS HAVE TRACK SKIRTS

GTA 17 3 13 (19)



Chapter Five
Defending Against the Chopper

Recent news stories carried by CNN and a few additional national news channels revealed the fact that a "police helicopter" flying its beat near Los Angeles was recently "shot down." It seems that a police department Bell model 206A Jet Ranger was cruising along on a routine patrol — whatever that means in municipal L.A. — and was holed three or four times by small-arms fire. The chopper landed immediately, but the real story was — of course — quickly buried by the media.

At any rate, the police pilot immediately set his bird down after noticing bullet holes. The still unidentified shooter had been extremely fortunate. He hit the chopper several times, including a nice strike to the fuel tank. Most pilots won't know they are leaking fuel until they land. No chopper pilot will fly their machines while leaking fuel — if they are aware of the situation — unless it is to get to an emergency landing zone. News reports did not indicate the cost of necessary repairs. An experts suggests that they may top $50,000[1]!

[1] Grupp, Erik L. U.S. Coast Guard helicopter crew chief. Aguadilla, Puerto Rico: February 19, 1995. Interview.

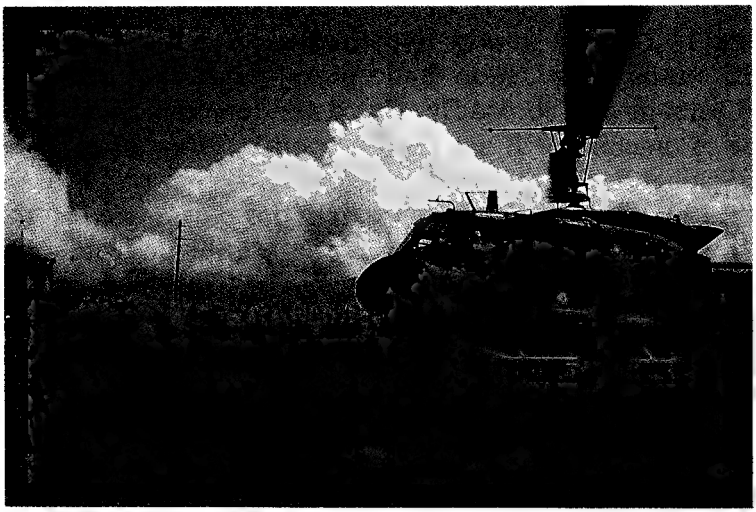
Modern choppers provide government troops with instant mobility into hard-to-reach places. Helicopters, however, are quite delicate, requiring a great deal of maintenance.

It is also apparent that these news stories neglected to give a complete accounting of what really was going on. In this regard it was typical. Why, we should ask, did somebody fire on the chopper? What was it doing to draw small-arms fire? Why was it close enough to the ground to be hit?

Contrary to popular perception, chopper pilots are a very unsuicidal bunch. They do not generally view police flights as do-or-die missions flown for the Good of Democracy. One could hope that this same mentality prevails when army personnel fly missions against fellow citizens. But the record is spotty at best in this regard. Currently, the U.S. has virtually *no* experienced combat helicopter pilots, with the exception of a handful who served briefly in Desert Storm. As conflicts intensify, gunship pilots become more

daring and dangerous, provided that general morale of the organization is maintained, which may argue both for and against their vigorous pursuit of citizens.

Three levels of threat exist when considering a defense against choppers, experienced combat helicopter pilots claim. These include the use of choppers for observation, as platforms for machine guns and the use of heavily armed and armored machines such as Cobras. Citizen defenders should evaluate in advance what they are up against, and plan accordingly.



Helicopters of all three levels are, as a practical matter, only vulnerable when parked, taking off, landing or hovering.

If, for instance, defenders find they are dealing with an observation helicopter, such as a small two-place Bell or a larger five-place civilian Jet Ranger, threats of immediate harm from the chopper are minimal. Universally, these machines are extremely fragile and can not really take hits

from small arms without suffering material damage. Their pilots know this only too well. They absolutely will not remain in an area where they are being fired upon. One rifle round cracking past the bird will usually drive it off. By a factor of ten to one, this is the type of chopper that defenders will usually face initially.

This is not to claim that these machines cannot inflict real harm on defenders, but rather to point out that observation helicopters won't remain in an area and duke it out, if it comes to that. Movies featuring bad guys hanging out the door of thin-skinned observation machines firing M-16s are purely hypothetical. Certainly, observations made from these helicopters regarding movement and terrain can be deadly. But defenders can be sure this type of machine will not be deployed by itself in an active engagement.

Fire on or near these guys, and they are gone, or they may pull up to an altitude where they are safe from small-arms fire. Usually, at safe altitudes of 2,000 feet or more above ground level, few good observations can be made. Some choppers carrying professional, trained observers may also carry along special high-powered battery-operated gyro-stabilized binoculars that can be successfully used to pinpoint defenders' positions. One maker claims that users can spot a penny at two-thirds of a mile from a moving chopper with their binoculars.[2] If Coast Guard helicopters, for instance, are deployed against citizens, they most certainly will have gyro-stabilized glasses on board. However, these units cost about $5,000 each, and are not currently in widespread police use.

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[2] Plaster, John. *The Ultimate Sniper*. Boulder, CO: Paladin Press, 1973, p. 235.

The vast majority of the world's helicopters are used only for transportation and observation. They carry no armament.

The second level of threat is the one with which most citizen defenders will ultimately probably have to contend. These include most military choppers *not* up to and including fully armored mini-gun and rocket-firing machines such as the Apache, Cobra, Blackhawk, and Hind.

Various Bell models, including UH-1B's, UH-1D's and UH-1N's (including all we commonly lump together as Hueys) are in this class. These are all machines made for basic military application. Users line the floor with Kevlar vests and full ammo cans as a sort of armor protection with which these machines are *not* factory equipped. Machines such as these are still easy to shoot through with regular small arms, if one can hit them, but are also often equipped to return fire by means of door-mounted machine guns.

Defenders who fire on these models can expect a swift, deadly, effective, retaliatory response. Usually, if commanders sense danger, these machines will operate in

pairs. Any measures against them must be taken quickly, in surprise, and be very deadly. Most likely, these machines won't appear in advance of observation choppers, unless our society degenerates into a general conflict.

Contrary to popular belief, these machines can only be summoned from a relatively few fields around the country, and live ordnance for them is carefully controlled and would be cleared for use only after a lengthy, time-consuming bureaucratic process.[3,4]

Unless defenders have captured 20-mm guns or rockets, there is little hope in trying to duke it out with fully armed, armored Cobras or Apaches. These comprise the third level of threat on the part of helicopters. Once these machines are in the air, fully armed, there is realistically little citizens can do to resist them unless they rely on the fortunate, random rounds that brought down so many of our choppers in Vietnam and so many of the big bear's machines in Afghanistan. Fortunately, there are very few of these types of heavily armed helicopters around. There are less than 1,200 world wide, according to *Jane's*. Many of these have been sold abroad or have gone to the great helicopter pad in the sky.

While most helicopters are easily holed by even very small weapons, actually hitting one flying along at a normal altitude is unlikely. Choppers fly at from 90 to 175 mph depending on prevailing wind, model and the pilot's skill.[5] Lead, windage and trajectory problems involved with actually hitting a chopper, even one at a modest altitude, without automatic weapons and tracers are tough.

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[3] Miller, Robin. Military combat helicopter pilot, retired. Carmel, California: January 11, 1995. Interview.

[4] Askins, William. Military combat helicopter pilot, retired. San Antonio, Texas: January 10, 1995. Interview.

[5] Apostolo, Georgio. *Illustrated Encyclopedia of Helicopters*. New York: Bonanza Books, 1984.

Experts suggest that proper instruction and training can overcome these difficulties, but wise defenders keep the problematic factors always in mind. Was the L.A. chopper mentioned at the start of this chapter maneuvering in some sort of paramilitary operation? We don't know, and news accounts seem purposely unclear.

Unarmed choppers will immediately leave the area if fired upon.

Unless a defender is fortunate enough to catch a chopper hovering or slowly maneuvering at relatively modest ranges, strikes on target are uncertain — achieved only after practice and training. To fire on machines which are flying along at any altitude on routine maneuvers often invites retaliation, without certain hope of doing damage.

Robin Miller probably holds some sort of record for the number of helicopters lost in the performance of normal duty. The eleven that crashed under him do not include those he nursed back to base after being shot full of holes.

Captain Miller says, "Helicopters are simply thin aluminum cans with people in them. These machines are extremely complex. A chance single round can be totally disruptive, leading to the chopper's downing. Luck and chance are the primary factors in downing a helicopter with a single round. However, I can personally attest for the fact that it can be done, having been the pilot of a chopper that was the victim of a *single* carbine round!

"A few specialized attack helicopters such as the Cobra or the Apache have some armor and bullet-resistant canopies for the crew, but most are just cans," he says. "That is why experienced chopper pilots fly high, or very fast when under 200 feet above ground level."

In serious military actions, against civilians, or as support for tanks, armed helicopters will always utilize combat formations. During the early days of Vietnam, teams of helicopters routinely flew out relatively slow and low in an attempt to draw hostile fire. By this means they hoped to pinpoint enemy concentrations and then bring superior firepower to bear.[6]

Defenders must always remember that if they fire on one chopper, the second will always return fire. Choppers can stand out at ranges beyond those to which defenders can respond, and chew them to little pieces. All fire at choppers absolutely must be coordinated by an overall field commander who designates which machine will be fired upon. One hundred percent discipline must be maintained, so that all fire is directed at the unarmed troop-carrying chopper at its moment of greatest vulnerability when on short final descent, landing or hovering to discharge its load. This accomplished, all should redirect their collective fire at a single designated escort, on command from the leader.

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[6] Miller, Robin. *op. cit.*

Standard military choppers can be fitted with door guns and/or rockets. Ammo cans and Kevlar will be placed on the floor, creating a second threat level chopper. These are the armed military choppers which can fire back if fired upon.

Helicopter return fire can be delivered via one or more of up to forty-eight air-to-ground rockets armed choppers carry, rounds from 7.62-mm mini-guns, 40-mm grenade launchers and/or rounds from M-60 door guns. Rockets fired from choppers are not extremely accurate, but will usually strike inside a 100-foot circle at 1,000 meters. With a practiced gunner, 40-mm rounds strike within a 55-gallon drum at 1,000 meters! Electronically aimed mini-

gun fire is said to be very accurate. It is sufficient to hit a single exposed enemy from over six hundred meters while flying at 125 mph.[7] In any event, both rocket and 40-mm fire can be somewhat off target, because of their explosive components. The newest armed choppers carry 20-mm guns and wire-guided TOW missiles that are very accurate. TOW missiles cost from 40 to 60 grand each, but — be assured — desperate governments may easily feel that a single citizen defender's death is worth that price.

Some military choppers can change roles quickly. Be especially cautious of any chopper, especially those flying in pairs.

[7] *Ibid.*

Glamorous appearing door gunners must contend with similar range/trajectory problems faced by those firing up from below. They have a better vantage point, but are usually more exposed. Door gunners are most effective when the chopper is hovering or landing, but, with practice and use of tracers, can become deadly at both high speeds and from high altitude. We can safely assume that at present there are few experienced door gunners in the U.S.

Anyone who exposes himself as a threat to an armed chopper is dead meat. Chopper fire can always reach out to distances from which civilian fire is mostly ineffective. The best alternative for those defending against the chopper is to surprise and trap them. This ability will only result when defenders train together extensively, learning to closely coordinate their common efforts.

Bill Askins, a Marine veteran of Vietnam, reckoned that the most effective method of hitting a helicopter was to do so at its pickup point or PZ. "Defenders who carefully remain hidden while a squad dropped off from a chopper does its patrol and then returns to a chopper PZ can be very effective," he says. "It's a concept few people think about, because it's hard to maintain discipline in the group, and then even tougher to get everybody into position as the return flights come in.

"Generally, pickup is made far from the LZ (landing zone)," he says. "Knowing where this will be requires that defenders intercept radio traffic, have a general idea where landed troops will patrol and have an excellent concept of how chopper pilots think."[8]

Other than Kevlar flak jackets that pilots and gunners sit on and a layer of ammo cans on the floor, most choppers do *not* carry armor. Unless they first hit a fuel tank — usually located right under and slightly behind the mast —

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[8] Askins, William. *op. cit.*

a transmission or an engine, 90 percent of the rounds striking a chopper will penetrate end-to-end or side-to-side. Experts claim this is true with 95 percent of the helicopters flying today. Cobras, Apaches and Hinds are heavily armored. If citizens encounter these, they must remain carefully hidden while firing, knowing that chance and luck play an important role. Vietnam and Afghanistan demonstrate that if one rolls the dice often, one can get dramatic results.

Choppers are severely limited by their basic design. Payloads, as compared to ground carriers, are modest. Even fixed-wing airplanes carry relatively light loads, in spite of quantum leaps in engine horsepower. Adding heavy armor to choppers is done for some special presidential models, but regular models with which civilians will contend will rely on speed, maneuverability and destructive return fire from the second in the pair as their primary defense.[9]

At one time, it was practically possible to successfully string lighter phone/electric wire in areas where choppers were expected. Theoretically, these tangled the rotor mast catastrophically, incapacitating the control mechanisms. While this technique might work with some converted civilian choppers used by the police, it is not a device on which one should casually stake one's life. A Coast Guard helicopter crew chief points out that many military choppers have built-in wire cutters on the forward cabin exterior that counter the threat of wire.[10] The jury is still out as to the overall effectiveness of these devices. Inventors claim they work, while some pilots claim they are a "Mickey Mouse" device.

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[9] *Illustrated Encyclopedia of Helicopters*. NY: Bonanza Books, 1984, pp 8-31.

[10] Grupp, Erik. Coast Guard helicopter crew chief. Aguadilla, Puerto Rico: December 19, 1995. Interview.

Experts agree that heavier steel-cable-type lines will always work. Somehow, they must be hooked onto a low, fast flying chopper's skid, landing gear, tail boom or even mast. By so doing, choppers can be tipped into unflyable positions and destroyed.

Electrically stabilized gyro binoculars allow observers to monitor defenders from altitudes above which small arms can reach.

Effective cables must be no lighter than $^{5}/_{32}$″ in size. Three-eighths-inch cables are better, but much tougher to find and deploy.

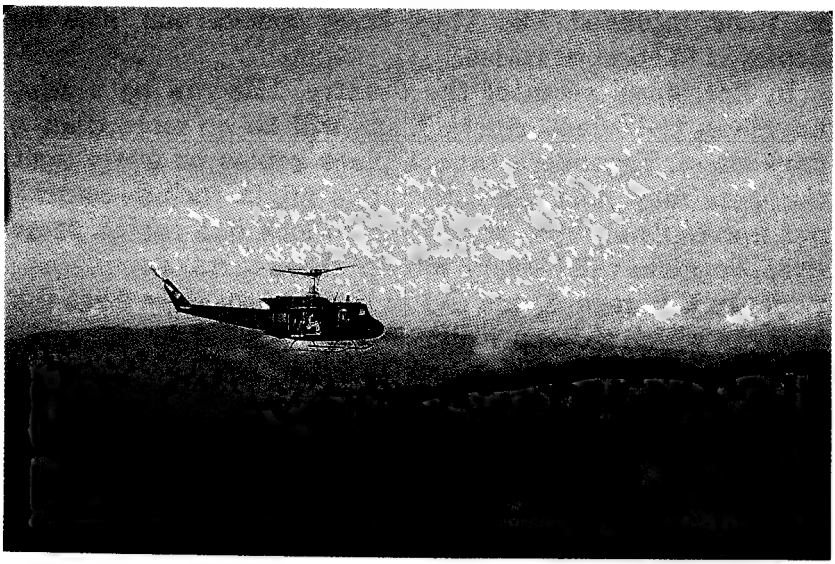
Choppers by nature must use predictable locations to approach and land. Not to the extent of requirements for fixed wing aircraft, but predictable locations nevertheless. Those around choppers quickly learn to spot landing zones that will be acceptable to chopper pilots.

Taller surrounding obstacles require larger actual landing zones, especially if the chopper is heavily loaded and it must get in and out quickly. Heavily loaded

choppers require some forward movement at takeoff. Nimble straight-up departures are done only when most fuel, ammunition and personnel are off-loaded. The author vividly recalls attempting to take a fully fueled Bell 47G one hot day from the Selma, Alabama airport. We had about five thousand rounds of .303 British ammo on board. After unsuccessfully attempting two 400-foot ground-effect hovers, we landed and drained half the fuel from the tanks. At the time, fuel was far less valuable than .303 ammo. We were then able to "make a running takeoff," i.e. taxi on the skids at speed until transitional lift was acquired, and we were able to pop up to 300 feet where we motored along till additional fuel was burned and we could climb higher.

Cables strung unobtrusively at treetop height would have easily impeded us, even after off-loading our fuel. Choppers are inherently unstable. Even a light tap from a camouflaged cable on a large machine could be effective. Yet heavy military choppers will, at times, break through all but the heaviest cables strung out to ensnare them. If one has nothing more sophisticated than cable, one might paint it green or black and string it out at treetop height, obstructing an otherwise clear avenue of approach. If nothing else, chopper pilots may see the cable, avoiding the area completely, thus securing it for citizen defenders. Light cables can be festooned with explosives or hung with decoys that look like explosives, all of which would be extremely effective for spooking away choppers.

Be constantly alert for any clear corridors through a rocky, brushy or tree covered area into a relatively flat, rock free patch that could be used by choppers. These are the places from which government choppers may stage attacks on one's retreat. Consider using standard military smoke devices of the type used by ground forces to indicate winds and a safe LZ to lure choppers into heavily defended landing zones, or to confuse pickup choppers.



Armed military choppers virtually always fly in pairs.

String cable (not wire) at treetop height through any extensive corridors. Angling cable down from the tops of tall trees to the far side of the LZ might be effective, provided defenders have sufficient cable to run a line every 150 feet. All cables must be securely anchored, with sufficient strength to either tip the aircraft or break pieces from it.

Possible LZs can be obscured with smoke from either generators or burning tires, provided winds cooperate. Under some conditions, any smoke may just act as a wind sock. Experienced chopper pilots are often reluctant to fly into an unknown landing zone *covered* by thick smoke. Many smoke pots going in an area might cause concern. Unless the mission is deemed to be very important, military pilots will think twice before risking their lives and machines if they see huge amounts of flame and smoke

in their intended LZ. They know smoke can also be deployed to obscure cables.

In flat, open areas of the country, LZs can be almost anyplace. Cable and smoke traps will be no more than a crap shoot. Defenders cannot place cables at every spot choppers may land. An alternative might include setting out hundreds of ropes strung out to look like cables. Most chopper pilots will be very wary of these sorts of configurations. In this regard, one can sometimes severely limit the areas in which a chopper pilot can and will set down.

Current Swedish military defense against choppers includes use of heavy, large, fragmented claymore-type mines. These are set up on steel racks in areas where choppers will likely approach.[11] Use of shaped-charge flamethrowers is also suggested, if the area where choppers might land can be determined with some certainty.

Weight of heavy claymore mines used against choppers is about 50 lbs., approximately half of which is C-4 type explosive. About 1,400 fragments, measuring almost half an inch in diameter, make up the fragment package. For reference, standard M 18A1 U.S. Claymores weigh about 3.5 lbs. The effective range of these large chopper-killers is said to be about 500 feet.[12]

Using information from the book on home-built claymore mines, defenders could home-build these scaled-up devices. The biggest problem would entail finding unhardened .40-caliber round fragments in sufficient quantities. These devices might effectively protect large open areas where helicopters venture. Just keep in mind that this Swedish model of contemporary warfare is extremely stylized. No helicopters were known to have been shot down with

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[11] Sales Brochure: *Directional Fragmentation Mines.* Graz, Austria: Dynamit Nobel Graz. Undated.

[12] *Ibid.*

claymores in Vietnam, although it was popular wisdom that they should have been able to do the job.[13] Vietnam was probably the largest testing ground for helicopter warfare in history.

Sapper attacks especially undertaken by snipers can destroy valuable parked choppers if ground personnel are taken by surprise.

Seasoned chopper pilots emphasize that, initially, their biggest single fear while flying low or at the LZ was small-arms fire. Towards the end it was shoulder-fired, heat-seeking missiles if the choppers were above 1,500 feet, but that's another issue. Seasoned, thoughtful military people believe that if a protracted guerrilla-type confrontation erupts within the U.S., citizens will soon have shoulder-fired surface-to-air, heat-seeking missiles. "They will buy them illegally from some poor supply sergeant making $19,000 a year," one retired officer suggested. "Stinger

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[13] Miller, Robin. *op. cit.*

missiles are made in the U.S., and someone will know the sister of someone who works in the factory that makes them. Citizens should definitely not conclude they won't have Stingers, any more than helicopter pilots should assume they won't be facing them." Obviously, the destruction of even two or three choppers with purloined surface-to-air missiles will change the whole course of military history, pertaining to armed revolt.

In the context of small-arms fire, well-hidden, properly armed and practiced snipers offer the best hope of actually holding out against choppers. Snipers who, through clumsiness or ineptitude, reveal their positions for any reason, are dead meat. Armed choppers will stand away and simply destroy any snipers they see at ranges defenders can never match. In a proper shooting contest, one must be resigned to losing many snipers during an effective defense against choppers, even if defenders use narrow, deep, well-protected L-trenches from which to conduct their activities.

Other than a bit of range, which may not be helpful against fast moving machines, snipers with heavy .50-caliber rifles will not necessarily have much advantage — a reality that relates to the fact that .50-caliber snipers will certainly have only one round to the ten available to .30-caliber users. .30-caliber rounds will usually do sufficient damage if one can achieve hits on the target. Half-inch rounds *do not* decrease the range and speed calculations necessary to secure hits, greatly disadvantaging defenders with limited supplies of ammunition.

Afghani freedom fighters are reported to have shot the rotor hubs from Soviet Hind helicopters.[14] But *all* current experts suggest aiming at the body of the helicopters, rather than at some hard-to-hit spot in particular. A round which hits virtually anyplace on a chopper will damage a

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[14] Plaster, John. *Combat Arms*. March, 1993, pp. 11&12.

turbine, hole a fuel tank, cut electrical lines or sever hydraulic hoses. Rounds passing through the tail-boom assembly may not hit anything important, and rounds through the middle (right behind the pilots) may also do little more than prick the aluminum skin. Critical flight controls run underneath the flight deck. Universally, helicopter experts suggest that just hitting a flying chopper is tough enough, without worrying about specific targets on the machine. In that regard, the Afghanistan hub stories are probably apocryphal.

Fire on any one of these choppers and invite immediate response by the other from its door guns. Currently in the U.S. there are virtually no experienced combat helicopter pilots and door gunners.

To review, the only time one will have a consistent chance of hitting a chopper, either with small-arms fire or with directional mines, is at the time when the machines are flying relatively slowly and close to the ground, and

when fire is cooperatively controlled and directed. Viet Cong and North Vietnamese regulars fully appreciated the combat threat posed by choppers. They tried to trap them in combat situations and shoot them down. As the war wore on, they brought in increasingly larger weapons, until they were using 20-mm anti-aircraft guns and missiles.

In many cases, defenders may — like the VC — discover that their best defense is to send snipers and sappers back into the enemy's rear area where they can direct fire into their enemy's choppers while they park, refuel or rearm. VC sappers were generally suicidal in the execution of their missions. This is not, of course, a likely philosophy for American citizens.

In this case, defenders may be dealing with heavily armed, armored choppers of the AH-1S Cobra type. Effectively holing these from any distance will require larger sniper rifles such as the .50 caliber Barrett. Citizens' chances of actually taking out one of these models is remote, but if it can be done, the psychological impact will be dramatic. Unarmed troop transport choppers sitting on a field can be severely damaged by only a few .30-caliber rounds.

Desperate defenders should be alert to the possibilities of destroying offending choppers on the ground at the place where the choppers sleep.[15,16,17] In this regard, civilians may have some small advantage.

Armed, armored choppers are incredible fuel hogs. Keeping these beasts fueled will require an airport-type refueling capacity, not too far from their place of operation. At first these facilities may not be well defended. Civilians sympathetic to the cause may work at the airport.

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[15] Miller, Robin. *op. cit.*

[16] Askins, John. *op. cit.*

[17] Plaster, John L., Major (ret). U.S. Army master sniper. St. Paul, MN: February 20, 1995. Interview.

Military choppers are relatively delicate machines. Rounds virtually any place will be disruptive.

Intentionally contaminating fuel used by choppers is often a laudatory, workable goal. The main fuel storage may not be guarded, or may be accessible by sympathetic civilians. Use styrene (as in the second component of fiberglass), common flour or — if nothing else is available — gasoline or even water mixed in the JP 4 fuel. Often, these measures are not as immediate as defenders may wish, but they are sometimes capable of grounding an entire fleet of choppers.

One can easily assume that gung-ho BATF types, who will bomb and shoot civilians will not exercise military-grade caution in protecting their machines. National Guard military-grade personnel may be reluctant to fire on fellow citizens who are attacking parked helicopters. But defenders should not count on this fortuitous turn of events until it happens in actual combat.

Claymore mines of any size which are placed in an engine turbine, next to a fuel tank, or virtually anyplace in the cockpit, will incapacitate even heavy choppers. Large Molotovs in the cabin or cockpit will produce similar results. Without immediate fire suppression, entire choppers will burn to a miniscule pile of ash. Hiding a grenade with the pin removed under a chopper skid, or even a claymore with a pressure-release switch, will allow both the safe retreat of the sapper and the destruction of the chopper. Wrapping a grenade spoon with plastic electrical tape, pulling the pin, and dropping the grenade into the fuel tank where the tape slowly dissolves is also suggested.

Should defenders be able to creep up on parked choppers, they may consider placing a thermite device in the cabin right next to the transmission or, if one can easily access it, on the chopper's fuel tank.

According to CNN, a paid mercenary in Columbia stole an airport truck which he used to ram and severely damage several DEA choppers. All were sitting on the strip at the main airport near Bogotá.

Jerry Golden, a former helicopter pilot now confined to a wheelchair, recalled the time in Vietnam in II Corps when he flew Vietnamese infantry reinforcements into a small city which was under major ground attack. At 1,000 feet he saw his designated LZ covered with smoke and mortar fire. North of town a soccer field seemed open. It was another three-fourths of a mile from the firefight which was then in progress, but it looked like a much better, safer LZ. From the air, everything looked ideal. Not a hostile in sight.

The first aircraft of his flight dropped its load without incident. Upon arrival of the next three choppers, the VC threw everything but their underwear at the soccer field. They had the area zeroed in for their 82-mm mortars, and dropped round after round into the field as if they had an endless supply. One Huey flying behind the three was hit in midair, much to the horror of my friend. In all, four

choppers lost their entire crews, including some American pilots who were trying to engage in rescue operations.

Choppers require predictable places and space to land and take off. Wise defenders will evaluate all of the options, planning accordingly.

"They could have set up claymores, conventional land mines, wires or whatever," he said. "We were enticed into what initially looked like an ideal LZ. Citizen defenders could pull off the same trick if they were half clever about it."[18]

No doubt the fellow's assessment is true, or would be practical the first few times citizens tried it. Create a nice, clean, peaceful looking LZ protected by claymores, snipers and perhaps land mines, and pop a standard army smoke grenade, giving the impression that this is the designated

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[18] Golden, Jerry. Military combat helicopter pilot, retired. North Manchester, IN: August 20, 1967 (approx.). Interview.

LZ. Several approaching choppers might be taken out. A 55-gallon barrel of ammonium nitrate could blow down everything within 100 feet. The blast would roll a low chopper right over on its back. If all else fails, the turbine might suck in rock chips and debris thrown up by a large blast, thus destroying itself.

Another pilot reckoned that suddenly igniting large quantities of gasoline on the LZ at the last moment might create a fire storm sufficiently great to incapacitate a low-flying or landing chopper. This does nothing to counter high-flying armed choppers moving in support of a general government mission, however.

An electronics guru suggests erroneous, fictitious radio commands to draw choppers into a trap or away from an area. In a few circumstances, this might work, but so might electronically charging radio beacons or landing system instruments. These devices, no matter how initially clever, require a great deal of sophistication that may not be available or may not even be applicable, depending on local conditions of weather, terrain and pilot familiarity. Most military aircraft are equipped with encoding devices. Whoever did the electronics work for civilians would have to be extremely clever.

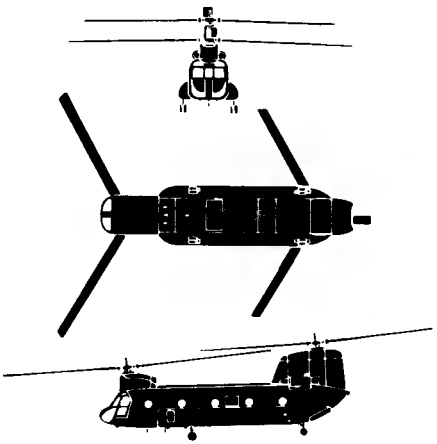
Bad guys may not always have bluebird conditions in which to fly. Russian invaders of Finland, for instance, had only four hours of daylight per day in which to operate their aircraft. Frequent severe winter storms cut even this meager allowance dramatically.

Of all machines of mass destruction, choppers are the most subject to the frailties of weather. Defenders should plan to work with, not against, the weather when dealing with any aircraft. Make the choppers work against it, mounting sapper attacks against them in the most vile rain, wind and snowstorms.

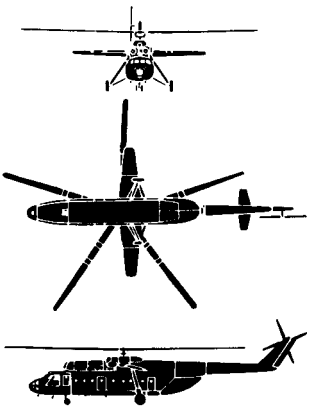
Government heavy weapons will probably not be sent against citizens during especially soupy weather. But one

never knows. Political considerations often override practical common sense. The SS lost whole companies during WW II in Czechoslovakia, Poland and Yugoslavia for political reasons alone.[19] Time always is on the side of the citizen defender. The tougher the government becomes, the more people are driven into the defenders' camp. Like tanks, armed helicopters are tough. If they can't be taken out, quit the field — returning on another day.

As with everything else in this business, defending against choppers won't ever be clean, neat, easy and absolute. Innovative defenders who know ahead of time what they will be facing may prevail, but perhaps only at great cost.



CH-47 CHINOOK (USA)
ROTORSPAN ------ 18 METERS
LENGTH FUSELAGE 16 METERS
SPEED ---------- 165 KNOTS
RANGE ---------- 2,252 KILOMETERS



MI-6 HOOK (USSR)
ROTORSPAN ----- 35 METERS
LENGTH FUSELAGE --33 METERS
SPEED --------- 150 KNOTS
RANGE --------- 1,050 KILOMETERS

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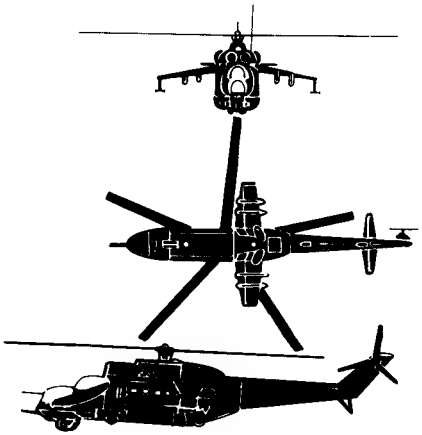
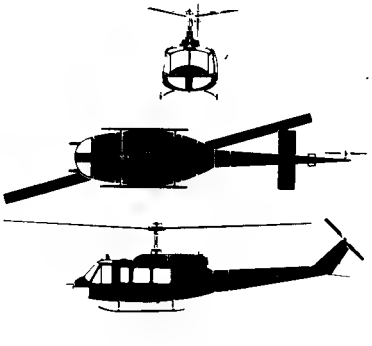
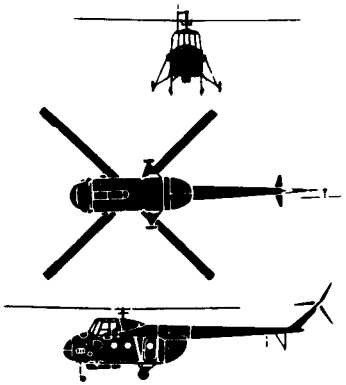
[19] Rossiter, Margaret. *Women in the Resistance.* New York: Praeger Special Studies. 1986.



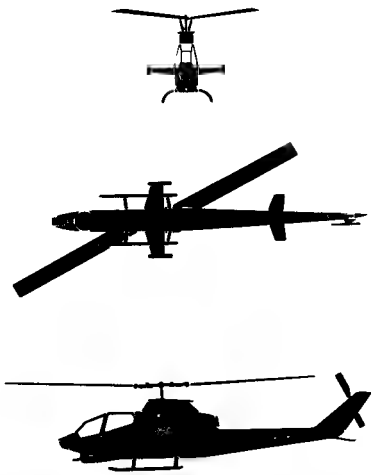
MI-24 HIND D (USSR)
ROTORSPAN ------ 17 METERS
LENGTH FUSELAGE ---17 METERS
SPEED ----------140 KNOTS
RANGE----------482 KILOMETERS



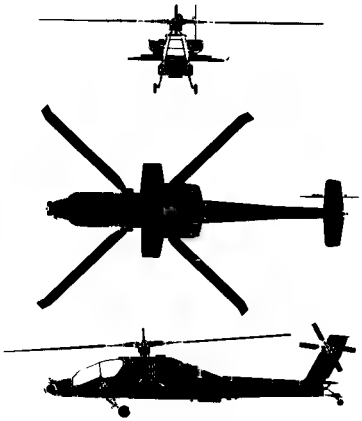
UH-1 IROQUOIS (USA)
ROTORSPAN ------- 15 METERS
LENGTH FUSELAGE --- 13 METERS
SPEED ---------- 110 KNOTS
RANGE ---------- 511 KILOMETERS



MI-4 HOUND (USSR)
ROTOTORSPAN ----- 21 METERS
LENGTH FUSELAGE ---16 METERS
SPEED ---------- 113 KNOTS
RANGE --------- 400 KILOMETERS

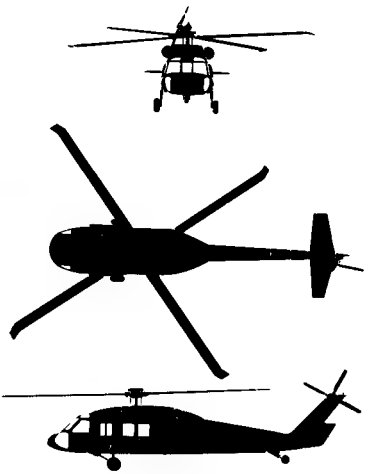


AH-1 COBRA (USA)
ROTOR SPAN ——— 13 METERS
FUSELAGE LENGTH - -14 METERS
SPEED———————190 KNOTS
RANGE ————— 574 KILOMETERS



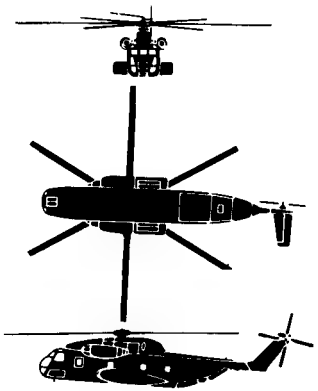
AH-64 APACHE (USA)

ROTORSPAN — 15 METERS
LENGTH — 15 METERS
SPEED — 178 KNOTS
RANGE — 609 KILOMETERS



UH-60 BLACKHAWK (USA)

ROTORSPAN — 16 METERS
LENGTH — 15 METERS
SPEED — 160 KNOTS
RANGE — 600 KILOMETERS



CH-53 SEA STALLION (USA)

ROTORSPAN — 24 METERS
LENGTH FUSELAGE — 20 METERS
SPEED — 160 KNOTS
RANGE — 869 KILOMETERS

Chapter Six
Taking Out Armored Personnel Carriers

When I was younger, during the time that Vietnam raged, an especially gung-ho Marine M113 Armored Personnel Carrier (APC) jockey regaled us with tales of his exploits. His graphic accounts of several actions are still vivid in my memory.

According to this fellow, little U.S. APCs then in service were ideal for that theater. "If we didn't get their infantry with our machine gun, we just ran over the top of them," he said.

Colorful, dramatic photos which he took showed numerous examples of bloody, squashed insurgents who apparently succumbed to this fellow's steamroller philosophy.

"We hauled a whole shipload of ammo for our .50-caliber and to feed our two M-60's," he continued. "Nothing they had the first few years could shoot through an M-113. These APCs were light and nimble. They could even be choppered into some very remote places where they provided a significant edge over people with no armor."[1]

[1] Although the author still has some of the pictures taken by this fellow, thirty years and thousands of miles have obscured his name.

Old military equipment is seldom retired. This ancient pre-WWII APC modified for use as a 20-mm weapons carrier is still in active service on the Island of Mindanao in the Southern Philippines. The old relic does have quite a bite.

But the fellow's eyes glazed over a bit when I asked what happened when the VC captured an American .50-caliber, or when they brought some RPG-7s or their own Russian 12.7-mm heavy machine guns into use.

"Rounds from a fifty or larger couldn't penetrate," he said. "They just punched in one side of the machine and bounced around inside.

"We weren't overly concerned about RPG-7s and heavy machine guns. Generally our machines moved fast, and in combat we supported each other. Anyone who took a shot was guaranteed hamburger.

"Land mines were a very big problem for us. In early 1967, when I was just leaving, we lost 14 APCs in eight

days, and six of these rigs were so badly hit, we didn't even get many parts from the hulks."[2]

Unlike tanks, APCs have much lighter armor, flimsy treads, or in many cases tires, and lighter weapons. However, modern Bradleys have 25-mm chain guns with enough range and pizzazz to knock the tread from an Abrams. Bradleys also carry several extremely powerful TOW missiles that can make one-shot kills on any tank, from 400 to 1,500 yards out. This is only true if the Bradley could do so quickly before the Abrams got them with its main gun. The main purpose of APCs is to carry supporting infantry and keep them safe from small-arms fire and artillery shrapnel. They are intended to keep up with tanks on the battlefield, but, because of their size, weight and tread-width disadvantage, cannot do so — *especially* in broken country.

Like tanks, APCs are subject to frequent breakdowns which require lengthy, often daily, maintenance. In their role as troop carriers, APCs are rough, noisy, often disagreeable vehicles in which to ride. Passengers are thrown about, often with sufficient violence to affect their performance when they dismount. This is especially true, experts claim, if the country is broken and the APCs attempt to keep up with faster, smoother running tanks.[3] Opinions vary, but APCs apparently get stuck much easier than larger, more powerful tanks.

Because of their widespread distribution, ability to move great distances, and their relative nimbleness in the field, defenders will more likely face hostile government APCs than any other armored weapon. Some 45,000 M-113s in various use configurations have been manufactured in the

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[2] His memory of the incident and my recall of it are apparently pretty good. *Weapons of the Vietnam War*, (Anthony Robinson, Gallery Books, NY, 1983, p. 84) records this event apparently from official records.

[3] Dunnigan, James. *How to Make War*. NY: Quill, 1983, pp. 57 & 61-64.

U.S. since their introduction in 1961.[4] Governmental agencies such as the IRS, DEA, FBI and the BATF can more easily acquire the use of an APC and crew because the cost to purchase, transport and then operate them is modest compared to other much bigger, heavier equipment. In most cases it is unlikely that tanks will be quickly available locally, for action against citizens. Currently, rumors circulate that BATF personnel are undergoing training in Bradleys and/or BATF has acquired a number of Bradleys. Calls to BATF about the issue result in smoke and mirrors.

Armored personnel carriers are the first choice of despotic governments. Because they cost less than tanks, are easier to maintain and require less skilled crews, they are liable to turn up more often than main battle tanks.

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[4] *Ibid.*, p. 62.

Modern Bradleys, if that is what is thrown against defending citizens, are completely impervious to .50-caliber fire, even at modest ranges, effectively ruling out a defense with heavy Barrett-type sniper rifles. But a great many APCs throughout the U.S. and the world are not Bradleys, and can be taken out nicely with well-aimed, thoughtful .50-caliber fire delivered from 400 yards or less.[5]

Treads on ultra modern Bradley fighting vehicles are as rugged as some WWII main battle tanks. Defenders can take out Bradleys with wise and timely placement of home-made mines.

Gasoline engines used in virtually all sub-Bradley vehicles burst into flames as the result of even a seemingly modest strike. But, as mentioned earlier, an APC's greatest weakness is its relatively wimpy tread and the vehicle's thin bottom armor. GIs in Vietnam tried using layered sand bags on the floors of their M-113s to increase their bottom resistance, but transmissions failed as a

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[5] John Plaster. St. Paul, MN: March 9, 1995. Interview.

result of the added weight. APCs are notorious for getting stuck and, in extended high-speed action, beating up their human cargo and crew so badly that these people can barely dismount and fight.[6]

In that regard, defenders must put out as many C-4-based land mines in likely APC approach lanes as materials, manpower and finances allow. Experts suggest that eight pounds of C-4 fired on relatively hard ground under even a Bradley tread will immobilize the machine. The trouble is that defenders may wish they had used heavier mines if main battle tanks are used by the government to attack their positions, rather than the more likely APCs. Because of limited power and traction, approach lanes are more predictable for APCs than for tanks. In Vietnam, APCs were often trapped in hand dug pits or tipped over on steep hills.[7]

Like tanks, APC mines can be made from salvaged, unexploded enemy explosives, including bombs, rockets and artillery rounds. They can also be anti-armor mines removed from the enemy's own field, or simply homemade devices assembled by knowledgeable defenders. Heavy claymores, either homemade or purloined, will take out lesser APCs at short ranges, but not Bradleys.[8] If one can arrange it, even a very small homemade claymore tossed inside of any APC will take it out. Both the front and back blasts from these devices have incredible destructive power in the relatively intricate environment of an APC's interior.

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[6] Robinson, Anthony. *Weapons of the Vietnam War*. NY: Gallery Books, 1983, pp. 38-40 & 84.

[7] *Ibid.*, p. 38.

[8] *Directional Fragmentation Mines*. Graz, Austria: Graz Dynamit Nobel. Sales Brochure.

Bradley 25-mm chain gun proved more deadly when used in Desert Storm than designers had first hoped. Note smoke grenade launchers both left and right of turret. Bradleys also carry internal smoke generators.

APCs of all types are more prone to getting stuck in mud, bogs and obstacles than are main battle tanks. Their engines are somewhat underpowered for the loads they are expected to carry. Defenders may consider trapping offending APCs in rock fields, very steep terrain, deep snow, water or very soupy, boggy ground. Boat-like hulls keep APCs from sinking out of sight, but a helpless, cut-off, immobile APC can easily be destroyed *or* appropriated for the defenders' own use. Consider using weakened bridges on poor road beds to dump APCs into a steep draw.

Bradleys can be deployed over the surf as invasion vehicles.[9] They ford 3.5-foot depths, and can be rigged with

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[9] *The Mechanized Infantry Platoon and Squad (Bradley).* FM 7-7J. Headquarters, Department of the Army, 1986, pp. E1-E11.

an external canvas skirt to swim in about 15 minutes. Abrams tanks can ford five feet of water if the bottom is hard, but cannot swim.

Unlike tanks, the visibility out of even a buttoned-up APC is generally quite good. In Bradleys, visibility is excellent, precluding defenders from sneaking up on all but very negligent crews. Many APCs have special fire ports from which their defenders can direct small-arms fire. Experience during Desert Storm suggests that Bradley crews will hang an incredible amount of baggage on their machines, often obscuring the observation points. Bradleys even have special machine gun ports with individual sight prisms for use by the defending crews. Machine guns especially designed for these ports fire mostly 5.54-mm tracers.[10] Older U.S. M-113 APCs, along with some foreign APCs, have no fire ports, or only one in the front or rear.[11]

Molotovs and flamethrowers would be extremely effective against APCs if one could get up close to these machines. A flamethrower's nozzle pumping through a fire port would turn an APC into an instant oven, perhaps detonating the ammunition.[12] According to CNN, some Eastern bloc urban guerrillas have apparently been successful at using smoke, and a coating substance such as paint splashed on an APC turret, sights and viewing prisms to temporarily blind APCs. Having done this, they got atop attacking APCs with Molotovs and flamethrowers. We do not know how often these devices worked, or if they were successful simply because Russian APC crews were inept, poorly trained or lethargically led. Obscuring the driver's sight alone may be sufficiently effective in cases

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[10] *Ibid.*, pp. 11-17.

[11] Dunnigan, James. *op. cit.*, pp. 61-62.

[12] *Ibid.*, p. 62.

where it is impossible to successfully attack all of the machine's viewing portals.

Driver's hatch on a Bradley, showing visi-prism which, because of their great numbers and the speed of the Bradley, would be tough to shoot out.

In all of these cases, defenders must first cause APC crews to button their machines' hatches by judicious application of sniper-type, small-arms fire. In this regard, APC jockeys claim that their single greatest fear (after mines, RPG-7 fire and M-72 anti-tank weapons) is little more than the lowly sniper.[13]

APCs virtually always operate in pairs. They carry their own nine-man infantry squads who can deploy instantly if necessary, unless slowed by obstacles or terrain. Getting

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[13] Robinson, Anthony. *op. cit.*, pp. 36-39.

close enough to an APC to use common household weapons is often a pipe dream.

Yet, well-equipped, well-practiced, camouflaged snipers which are wisely placed and waiting in teams along suspected APC routes can sometimes take out a driver or commander as they unwittingly motor along with the hatch open, if they can fire from straight-on positions. APCs gain part of their advantage from the speed at which they operate. These speeds are usually sufficient to prevent even very good snipers from making consistent one-shot kills from reasonably safe distances.[14] Still, a simple strategy has worked in the past, and should be considered again by defenders who have little else to use to deter invading APCs.

Defenders can manipulate the odds a bit by setting up mine fields, erecting road blocks, burning tires, waiting at curves, or even by doing simple things like lying in wait above stream fords or mud holes. Tales persist on CNN of urban guerrillas in Grozny who spread grease and oil on steep hills or curves in sufficient quantity to slow APCs, thus allowing a good sniper shot.

In spite of its many gun ports and great firepower, Bradleys are virtually blind around the engine on the right front. They are driven by a 500-hp turbocharged diesel engine that requires a tremendous quantity of air to run properly.[15] Temporarily incapacitating the machine in a mire hole, or by sniping out a driver or commander, and then obscuring the righthand firing ports may allow one to get flame on the machine. Making this strategy work will involve luring any companion machines away long enough to strike the target APC. Any strikes *must* be done so quickly that the infantry does not have time to dismount

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[14] Plaster, John. St. Paul, MN: February 1995. Interview.

[15] *The Mechanized Infantry Platoon and Squad (Bradley).* FM 7-7J. Headquarters, Department of the Army, 1986, pp. 1-3.

and deploy. This is surely a tough nut, but one that has been cracked in several Russian cities, according to CNN.

A six pound sapper charge, if one can get up on a parked Bradley, will crack a sprocket or cut the track, incapacitating the machine so that it can be dealt with using other measures.

Most common APCs other than Bradleys are equipped with simple optic sights. Bradleys have heat-sensing sights. Drivers and crew are all equipped with good night-vision devices. Some experts recommend using large, flash-bang grenades made from powdered sugar and potassium chlorate to temporarily blind this electronic gear, as well as the Bradley's heat sight. It will be extremely hazardous, but defenders who deploy close, large flash-bang grenades at night will have a few seconds to get atop their targeted Bradley.

APCs are a favorite vehicle for Third World dictators. Lacking funds, despots in perilous revolutionary circumstances sometimes deploy relatively cheap, easily trans-

ported and maneuvered APCs. Crews are often poorly trained and cowardly.

In most cases, these deployments provide sufficient advantage to cow poorly armed, poorly trained civilians. If one does see a destroyed APC in these circumstances, it invariably has been burned out.[16] Taking great casualties, citizens toss Molotovs onto the APC engines, or they use captured heavy machine guns to hole the vehicles, which promptly break into flames.

Note viewing ports below the foot of the GI on the Bradley. Unlike tanks, sight distance on these vehicles is quite good.

Bradley fighting vehicles weigh about 24 tons when fully loaded. They are among the heaviest and most powerful of the world's APCs.[17] Only West German Marders are heavier. All APCs, including Bradleys, can be channeled and pushed into unfriendly terrain by manmade barriers.

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[16] As exemplified by recent fighting in Grozny.

[17] Dunnigan, James. *op. cit.*, pp. 61-62.

APCs simply lack the weight and power to punch through rock, up slopes, through cement walls, through standing and fallen trees, and even through cable barriers that standard battle tanks crunch for breakfast. When circumstances permit, and materials are available, steel cables or steel bars may be placed across roads, thus denying access to APCs, or making entry time consuming and convoluted.[18]

Many experts recommend using common construction equipment, such as backhoes and bulldozers, against APCs. As when dealing with tanks, some situations may arise where defenders can use a D-7 cat to suddenly spring upon even a Bradley, rolling it over before the crew has time to react.

Most APCs carry smoke grenades. Bradleys also use internal smoke-generating equipment. Like a skunk in panic, they can flood their area with smoke, both obscuring their position from others as well as temporarily blinding the crew. Generally, smoke is not produced as a result of a sniper attack. It takes a great, perceived threat such as attacking helicopters, jets, other tanks or heavy infantry.[19]

Don Huskey and Tim Stevens, who have done it, recommend that at the instant an APC deploys smoke, one should immediately attack it with a Molotov or flamethrower. This is a dangerous business, done only under extreme circumstances, but apparently not all APC crews are well-trained, organized and alert. Several APCs have been taken out by common citizens under these circumstances, experts say.

Sapper attacks against APCs can be extremely successful, and may be the only option under many circumstances. In Grozny, snipers pinned APC crews down away

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[18] *Ibid.*, p. 63.

[19] *The Mechanized Infantry Platoon and Squad (Bradley).* FM 7-7J. Headquarters, Department of the Army, 1986, pp. J-1 through J-4.

from their machines while others in the same team deployed Molotovs and satchel charges. Like main battle tanks, APCs require a great deal of daily maintenance, allowing alert citizens to organize against the machines. APCs are complex beasts, similar to, but smaller than, main battle tanks. Molotovs tossed inside the hatch always burn the entire vehicle, especially gasoline-powered models.

M-113 APCs are found in dozens of configurations throughout the world. Underpowered, easily stuck, they give their users a very rough ride.

Thermite grenades on the sighting device, inside the engine compartment, on the batteries, in the ammo rack, or in the gun breech all have a very settling effect. A Bradley's 25-mm (one-inch) gun barrel is too small for most sapper charges. However, if defenders pre-plan, packing their explosives into sausage-like cartridges that can be

slipped down the barrel, these guns can be destroyed with homemade C-4.[20]

Basement C-4 can be used as a wraparound charge, outside of the gun's barrel or inside of the breech mechanism. It will take about three pounds of homemade C-4 to cut an APC barrel when fired as a wrap-around charge. Keep in mind that, on most APCs, including the Bradley, damaged guns are easily switched out of the machines.[21] Unlike tanks, loss of the main gun does not hamper the machine from continuing its duties as a small-arms-proof troop carrier and a squasher of opposition riflemen.

Some old-timers suggest inserting a small one-inch tube of explosives down a Bradley's gun barrel which will detonate when the gun is fired. Many homemade explosives are very inert, and it would be difficult to slide enough commercial dynamite down the barrel to do much good. Perhaps an obstruction would take out the gun. At this point, anyone who knows is not talking. Older machines with .50-caliber guns or something similar must be dealt with by using explosives in other vulnerable places, or thermites.

Many of the world's APC models are mounted on bullet-, fire- and damage-resistant pneumatic tires. These machines are somewhat faster on the road, and are better marsh and stream crossers, and they have about as much ability with their four- and six-wheel drives on slick, steep terrain as tracked vehicles. Thermites on the tires, if defenders can reach them, are extremely effective. Under some circumstances the tires can be burned with thermites, destroying the entire machine. Keep in mind that burning these tires is not similar to torching truck tires. They are much tougher in every regard.

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[20] *Ibid., pp. B1-B11.*

[21] Gowen Field, Boise, ID: January, 1995. Interviews with Bradley crews.

Rubber-tired machines can not be stopped with anything less than a 20-mm cannon. If one has such a weapon, it should be used to shoot up the turret, not the tires.

Rubber-tired APCs are a bit more immune to mines. The tires on these machines seem to absorb the blast of a mine better, preserving the machine's hull and crew.[22] Defenders facing rubber-tired machines must use larger quantities of explosives in their land mines.

Drive-sprocket wheels on all APCs, including Bradleys, can be torn up with relatively modestly sized sapper charges, such as those made from homemade C-4. It will require about five pounds of C-4, *if* the charge can be carefully placed inside the sprocket between treads. The C-4 must be carefully packed with clay, wet newspapers or water-soaked rags.

As a practical matter, sappers who spend days in Ghillie suits creeping up on APCs will probably prefer quieter thermite grenades to explosives and even Molotovs, when it comes to getting away successfully.

Summarizing briefly, APCs and newer Bradley Fighting Vehicles the U.S. is likely to use against citizens because of the machines' common distribution, ease of operation and inexpensive design, may constitute more of a threat than tanks. APCs are impervious to armor-piercing rounds, except those from the largest civilian rifles, and carry trained soldiers who can be instantly deployed.

The best defense entails mines, sniper teams, carefully planned obstacles and the use of sapper charges. Older APCs can be holed with .50-caliber rifles. But Bradleys are tough to approach safely unless defenders can use sniper fire to get the crew to button up, while deploying smoke or flash-bang grenades to blind the machine's sophisticated sighting equipment.

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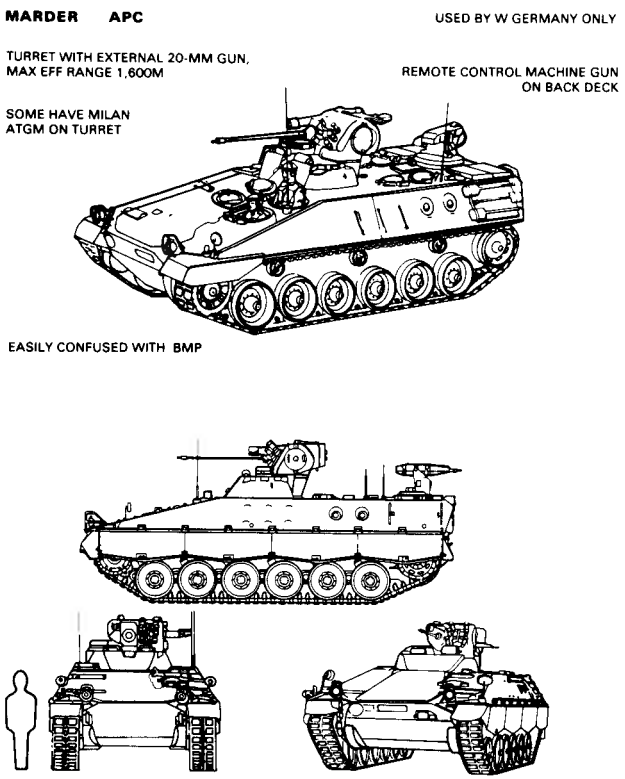
[22] Dunnigan, James. *op. cit.*, pp. 61-63.

These are tough, tough nuts to crack. No APC will be easily defeated, unless a crew of countrymen simply decides not to duke it out with fellow citizens. Yet we see that the resistance in Grozny proved conclusively that APCs can be taken out if defenders are clever, bold (but not suicidal) and persistent. As when fighting tanks, they used a combination of purloined army equipment, common sense and makeshift, do-it-yourself devices.

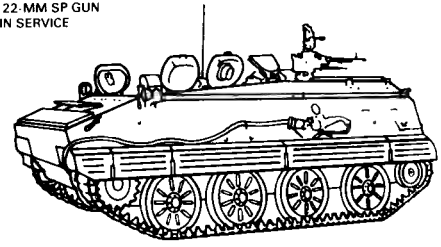


USED BY US ONLY
TOW LAUNCHER MOUNTED LEFT SIDE OF TURRET, MAX EFF RANGE 3,750M
25-MM GUN, MAX EFF RANGE 1,400M
M2 IFV APC
M3 CFV RECON
GAP BETWEEN 3D AND 4TH ROADWHEELS
KM 900 APC
USED BY S KOREA
LICENSE PRODUCED ITALIAN FIAT 6614
ARMED WITH CAL .50 MACHINE GUN
AMPHIBIOUS
EASILY CONFUSED WITH BRDM-2

TYPE 531 APC USED BY CHINA, N KOREA AND THIRD WORLD COUNTRIES

12 7 MM MACHINE GUN, MAX EFF RANGE 1,500M

MRL AND 122-MM SP GUN VARIANTS IN SERVICE



EASILY CONFUSED WITH FV 432 AND M113

AMPHIBIOUS

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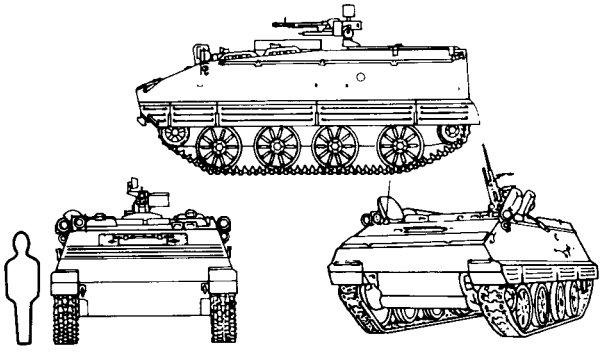
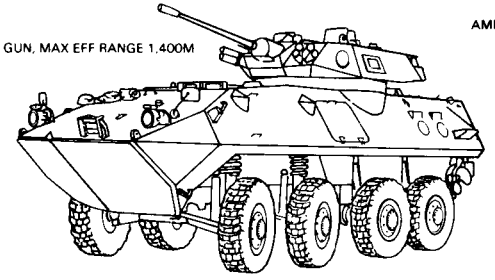


LAV-25 RECON USED BY US MARINES ONLY

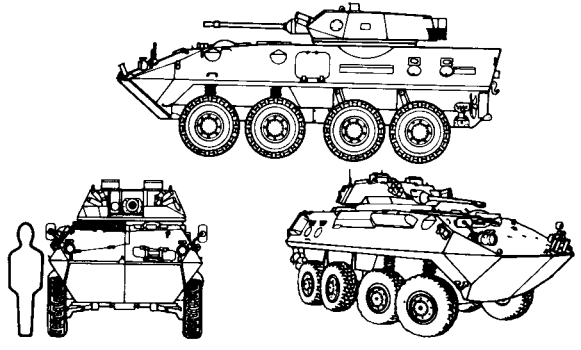
MORTAR, TOW, COMMAND AND RECOVERY VARIANTS ALSO EXIST

AMPHIBIOUS

25 MM GUN, MAX EFF RANGE 1,400M



EASILY CONFUSED WITH BTR-60, BTR 70 AND OT-64



BTR-60 APC USED BY USSR, WARSAW PACT AND THIRD WORLD COUNTRIES

14.5-MM MACHINE GUN, MAX EFF RANGE 2,000M

EASILY CONFUSED WITH LUCHS AND LAV-25

AMPHIBIOUS

M113 AND VARIANTS APC USED BY 60 COUNTRIES, INCLUDING US NATO AND THIRD WORLD COUNTRIES

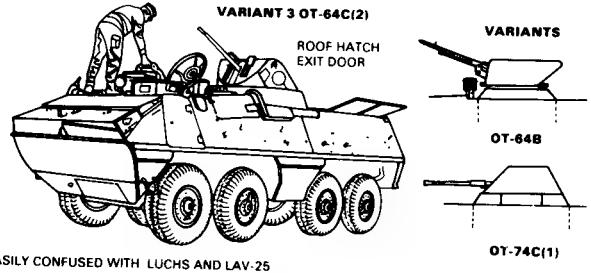
COMMON VARIANTS INCLUDE STANDARD INFANTRY CARRIER, MORTAR CARRIERS, M-577 COMMAND, M901 TOW LAUNCHER, VULCAN AIR DEFENSE WEAPON

MANY OTHER LOCAL VARIANTS EXIST WORLDWIDE

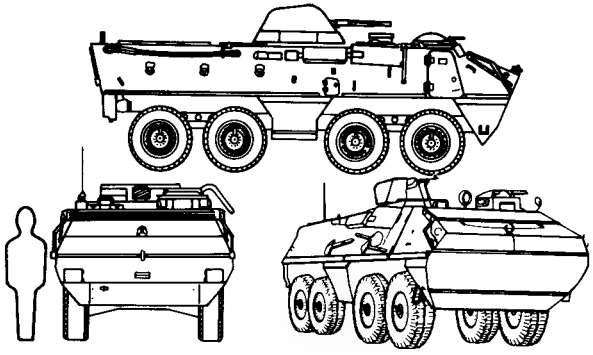
EASILY CONFUSED WITH TYPE 531

OT-64 APC USED BY POLISH AND CZECH ARMIES IN PLACE OF BTR-60

MOST ARMED WITH 14 5-MM MACHINE GUN IN A SMALL TURRET, MAX EFF RANGE 2,000M
CARRIES 8-12 INFANTRY



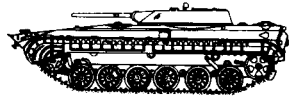
EASILY CONFUSED WITH LUCHS AND LAV-25



BMP M1981 APC USED BY USSR

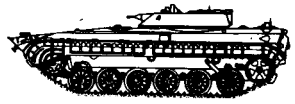
NEW 30-MM AUTO CANNON AND AT 5 SPANDREL ATGM IN LARGER TURRET

BMP M1976



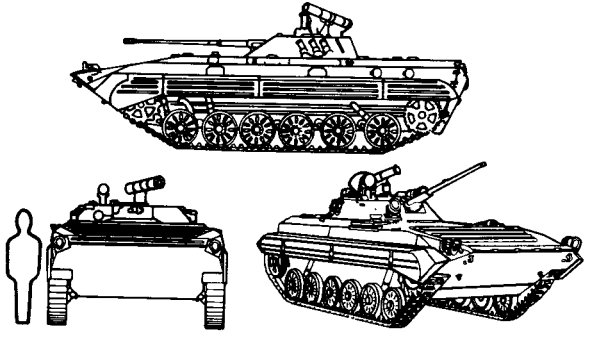
LARGE TURRET—NO ATGM
RECON UNIT LEADER'S VEHICLE

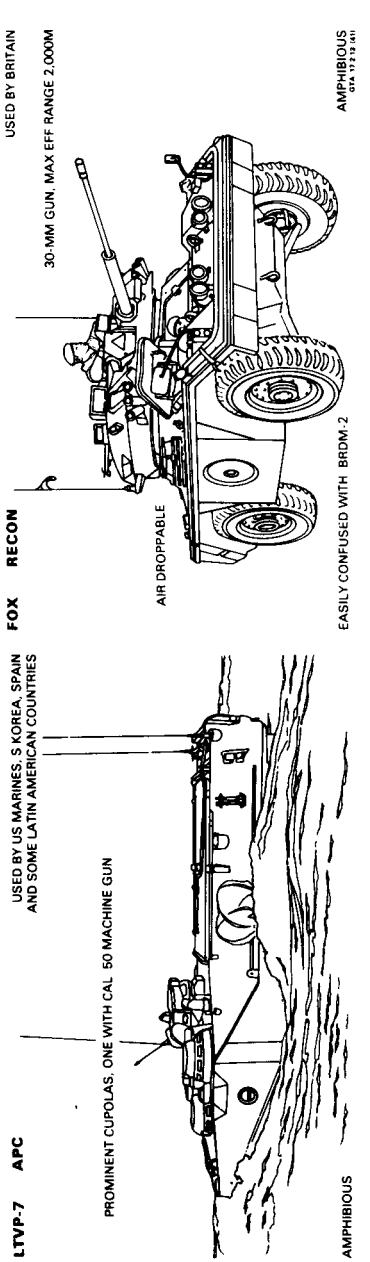
BMP M1975



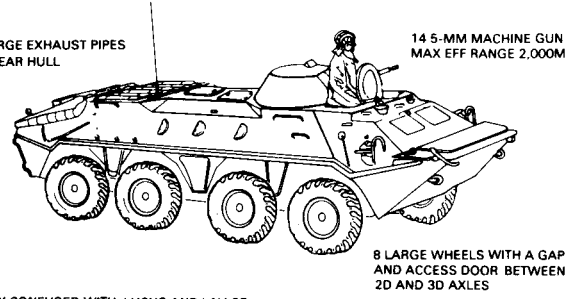
7 62-MM MACHINE GUN ONLY—
NO CANNON OR ATGM
FOLD UP RADAR AT BACK OF TURRET
ACCOMPANIES SP ARTILLERY UNITS

EASILY CONFUSED WITH AMX 10P, MARDER, AND 4K4F

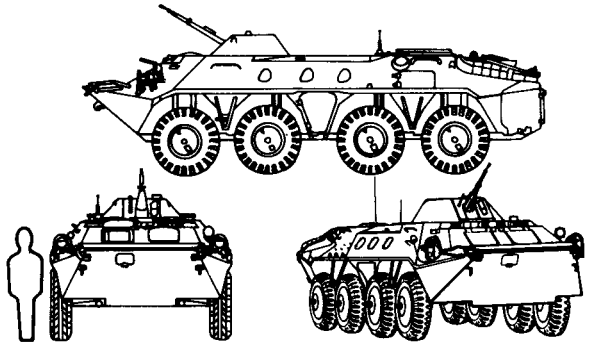



LTVP-7 APC
USED BY US MARINES, S KOREA, SPAIN AND SOME LATIN AMERICAN COUNTRIES
PROMINENT CUPOLAS, ONE WITH CAL .50 MACHINE GUN
AMPHIBIOUS
FOX RECON
USED BY BRITAIN
30-MM GUN, MAX EFF RANGE 2,000M
AIR DROPPABLE
EASILY CONFUSED WITH BRDM-2
AMPHIBIOUS

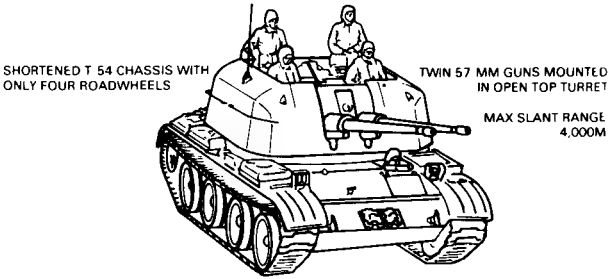
BTR-70 APC USED BY USSR, WARSAW PACT



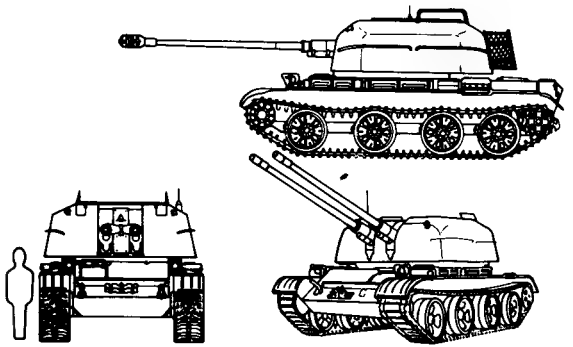
EASILY CONFUSED WITH LUCHS AND LAV-25



ZSU-57-2 SP AA GUN USED BY WARSAW PACT, N KOREA, FINLAND AND THIRD WORLD COUNTRIES



EASILY CONFUSED WITH M247 AND GEPARD



Chapter Seven
Jet Aircraft

Jet aircraft have not been used against American citizens, even during the Clinton Dictatorship. Armed helicopters and APCs were deployed against Randy Weaver's clapboard retreat, and tanks as well as APCs were used to flatten the church at Waco. But, to this date, it seems that jet aircraft have never been used by ourselves against ourselves. However, anyone who has watched our government in action knows that just because it hasn't happened yet is no indication that it *won't* happen.

Out in the field, attacking jet ground support aircraft would be extremely difficult to impossible for average citizens to contend with. In both Vietnam and Afghanistan, the regular army had a great advantage using its aircraft until civilian soldiers started acquiring military ground-to-air missiles such as American Stingers and Redeyes, as well as Russian SA-7 Strelas. In the case of Vietnam, Russia supplied the NVA with Strelas (Arrows) to shoot down our helicopters. We turned the tables in Afghanistan by supplying hugely more effective Stingers to the Mujahedeen, to the extent that many analysts believe

the then-Soviet withdrawal was precipitated by the great number of helicopters and jet aircraft they were losing.[1]

Although it may be unlikely, in a political sense, that defenders may have to face jet aircraft, it is even less likely in a practical sense. Mostly, the role of ground support goes to helicopters and to specially built aircraft such as the A-10. High-altitude precision bombing may be used against civilians. Without surface-to-air missiles, there is absolutely no effective response.

Current U.S. military thinking suggests that hostile jet aircraft conducting ground-support missions are virtually impossible to defend against, much less destroy, by ground troops using basic small arms. Military jets simply fly too fast, too high or — as in the case of the A-10 — are too heavily armored. As a sort of balm for their soldiers who must sit and take a pounding from hostile jets, training manuals do suggest a fire-back exercise, allowing victims to do more than crouch there and take it. A-10s are the machines known as Warthogs that were used so successfully in Iraq. A-10 pilots sit in a kind of titanium bathtub, impervious even to .50-caliber rounds, unless they are fired at very modest ranges.[2]

"Because of its speed, a jet aircraft can best be engaged by a continuous burst of machine gun fire," a 1986 training manual reads. "When the aircraft is flying a crossing course, use a lead of 200 meters, allowing the aircraft to fly through the machine gun's cone of fire.

"Defenders should *not,* under any circumstances, try to track or traverse with the aircraft. It flies much too fast to attempt to swing on such a target. Soldiers with their M16A1 rifles, M249 SAWs or M60 machine guns should

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[1] May 1992 interview with a genius class member of the Stinger development team who wishes to remain anonymous. His name and phone number are available to serious researchers who write.

[2] Dunnigan, James. *How to Make War.* NY: Quill, 1983, p. 124.

use the same 200-meter lead, firing at a fixed imaginary point in the sky ahead of the aircraft. Fire as rapidly as time and available ammunition allow."[3]

Modern jet aircraft are heavily armored and fly much too fast to be interdicted by weapons available to citizen defenders. The only defense is using vehicles, small arms fire, thermites or claymores to get the machines on the ground.

Obviously, this is just "let's do something besides sit here and take it" advice. Another retired Air Force officer said that, without tracers and machine guns, average firers on the ground can do little to defend against jets.

Yet this book is as much about the philosophy of resisting as it is about the technicalities. Some defenders

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[3] *FM 7-7J, the Mechanized Infantry Platoon and Squad Bradley*, U.S. Department of the Army, 1986, pp. F1-F3.

may wish to load or buy surplus tracer rounds of the type used in legal rapid-fire, handcrank semi-auto rifles. Doing nothing is probably not an option.

During Vietnam, several of our jet aircraft were reportedly shot down by NVA and VC fighters who collectively fired their weapons at an agreed spot 200 meters ahead of our aircraft in a concentrated, continuing fashion.[4] As the manual says, they just allowed the plane to run into this spray of lead. It may be difficult, but defenders may find that this is all they can do.

Even supposedly heavy military weapons are sometimes ineffective. Almost half the Israeli A-4s which were hit by SA-7s (Strelas) during the Yom Kippur War returned safely to base.[5]

Fire in front of and above aircraft approaching head-on, allowing the plane to run into the bullets. Even a few tracers will assist one with one's mission, but — regretfully — surplus tracer ammo is not nearly as plentiful as it once was.

Roles of American aircraft have traditionally been switched around, leading — for instance — to a plane being used first as a fighter, then as a missile decoy and then — as in Korea and Vietnam — to its use as a ground support aircraft[6].

All jet aircraft are not the flimsy aluminum cans characteristic of helicopters. Full-sized .30-caliber rounds may punch in one side, but most probably not out the other, even if strikes on the plane can be achieved. Strikes on an attacking jet may do very little damage. A-10s, for

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[4] Robinson, Anthony. *Weapons of the Vietnam War*. NY: Gallery Books, 1983, pp. 143-169.

[5] Gunston, Bill. *Illustrated Encyclopedia of the World's Rockets and Missiles*. London: Salamander Books, 1979, p. 181.

[6] Dunnigan, James. *op. cit.*, pp. 98-109.

instance, carry armor plate on the bottom half of the engine. All military aircraft have self-sealing fuel tanks.

Almost as a desperation measure, military manuals recommend concentrating small arms fire at a spot 200 meters ahead of a low flying jet aircraft in an attempt to get the plane to fly into the cone of fire.

Experts agree that 250 yards is the maximum for 7.62 NATO, .30-06 or .300 Win Mag rounds. At longer ranges, the rounds may harmlessly bounce off the plane's heavy skin. A 750-foot range is common against aircraft flying 200 feet above the ground. Inside that range it is often difficult to get enough sight distance for a valid shot.[7]

.50-caliber rounds will, of course, do more damage at greater range but, in a fly-by circumstance, it is difficult to imagine citizens having sufficient .50-caliber ammunition to accomplish any strikes on target.

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[7] *Ibid.*, p. 125.

Unless, by some completely unforeseen and unlikely stroke of luck, defenders are equipped with Stinger missiles, defense against hostile jet aircraft can be seen to be dubious. Alternatives are to use rough terrain, stealth and lack of concentration to one's advantage. This should preclude their being able to establish you as being targets worth deploying a jet against. Another very effective measure involves organizing sapper attacks on offending aircraft. Loss of even one aircraft on the ground will draw attention to the fact that they are being used against citizens and, hopefully, cause shame and consternation among government attackers.

Those who allow themselves to be fixed in place and concentrated by government forces could be successfully attacked by jets. Otherwise, it's a situation such as in Vietnam, wherein we randomly bombed and napalmed great stretches of tropical forest in the blind hope that a few NVA or VC would be in the target area. Conceivably, our government would napalm great football field-sized areas to get one especially effective sniper, but — generally — if they don't know where the sniper hides, they can't bomb him. Wise citizens will avoid becoming government targets, and then, if by some avoidable circumstance it happens, they will avoid grouping or concentrating into one place.

As a general rule, it takes some very severe, rugged, steep terrain or locations deep within a large city to successfully shelter defenders from jet attacks. Defenders might keep in mind the concept of using terrain to their advantage, without foolishly relying on it. Those who must make their stand on the flat had better reconsider making a stand at all.

Sapper attacks may, as a practical matter, be all there are. These may be very difficult to organize, or they could

be remarkably easy. Modern jets are ruinously expensive, so always consider sniper attacks.

Roles of aircraft switch over time. These OV-10 observation planes have been armed with rockets and machine guns in some countries and may be used in a ground support role against citizens.

Even what appears to be modest damage will ground most birds. Repairs can easily cost hundreds of thousands, if not millions of dollars. Any damage at all, if it can be publicized, to a brutal central government's ground support jet aircraft, will be a major blow to their prestige and ability to rule. It will also be a major boost to the defenders' morale. In that regard, overcoming difficulties relative to organizing a successful sapper attack seem justified.

Finding the plane's location — Air Force officers tell us — is not as difficult as it first seems. Jet aircraft can operate from lesser strips in an extreme emergency, but generally they require 10,000 feet of hardsurfaced runway

and the capacity to refuel.[8] There are relatively few places around the country from which jet aircraft can be summoned. As a general working rule, they will be brought up to within about 10 minutes' flying time, or 40 to 60 air miles from their intended target. Knowing this dramatically reduces the number of places to check to see if attack aircraft are there.

Rockets, cannon rounds and possibly fuel will be trucked in from magazines that — according to authorities — are even more centralized and guarded than the planes that use these supplies. Off the record, supply sergeants claim that the authorities are more paranoid about ordnance than aircraft.[9]

Having discovered all of this, it is not overly difficult for citizen defenders to determine where in their area offending jets will be stationed. A look at a private pilot's Sectional Chart will probably give defenders an excellent idea. Having identified airports with 10,000-foot runways, within 40 to 60 air miles, citizens can call private pilot terminals there to ask if jets are parked on the field. "I want to bring my seven-year-old over to see a jet take off," sez you to the fixed-base operator.

Having located the aircraft, one must locate them on the strip. They will probably be parked in a far corner, someplace out of general view. Authorities may lease a spot from the local Civil Air Patrol, customs office or a private operator. Planning the planes' demise as they sit innocuously on a strip is not overly difficult. At least it won't be difficult the first time one or two defenders undertake such action. These aircraft may be parked on

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[8] Hanson, Daniel. Officer, U.S. Air Force (Retired). Moscow, ID: January, 1995. Interview.

[9] Moran, J. Felix. Officer, U.S. Air Force (Retired). Pullman, WA: February, 1995. Interview.

military bases, making any action against them more risky, but far from impossible.

Defenders may be able to employ heavy claymores that are command-fired to get jet aircraft as they taxi for departure.

Cautious authorities could park their planes in sandbagged revetments similar to those in full-combat circumstances, or they might fly long distances for sorties, but these will probably not be the case until full-scale government combat with its citizens erupts.

Like helicopters, jet aircraft are relatively frail, complex beasts that will never knowingly be flown damaged by their pilots. All large commercial airports in the U.S. have security fences. Civilian private pilots know the combinations to the fence gates, and drive in and out with impunity. Watch for one of these pilots, and drive in right behind him. A large truck with a good steel bumper could do $100 million in damage in three minutes if there were enough planes lined up. Aim to get both the wings and a good piece of fuselage.

Those into more finesse and less risk might cut the perimeter fence, sneak in at night, and place a large thermite device on each wing about four feet out from the fuselage. Fuel in fighters is carried in self-sealing, bullet-resistant cells, but a well-made thermite grenade will burn right through, probably destroying the entire aircraft. Thermites in the jet intakes work, but not as effectively as one would hope.[10] Jet engines are made to withstand great heat. Damage may be insignificant.

Claymores in the jet engines, on the other hand, work wonders.

Try using a flamethrower fired up through the wheel well and aimed to ignite the plane's tires. Hydraulic lines will be fried and ignited, leading to nice secondary fires that will also destroy miles of wiring.

Throwing a claymore inside the plane's cockpit is a guaranteed winner. Like thermites on the fuel cells, a plane so treated will probably never fly again.

Those unable to get up on a jet aircraft should consider using their sniper rifles. Try shots into the fuel cell and the engines. .30-caliber rifles may work on conventional jets from relatively modest ranges, if rounds are fired from above. In the case of armored planes such as A-10s, even .50 caliber rounds won't penetrate. Lengthwise shots through the cockpit work well on jets. These rounds won't usually destroy a plane, but they will keep it on the ground for several weeks.[11]

Planners try to pick relatively flat places for airports. Firing down from slightly above is helpful, especially when delivering fire from long ranges. Consider using the roofs of surrounding buildings, especially private hangars, shop

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[10] Lowry, Jack. Officer, U.S. Air Force (Retired). Moscow, ID: February, 1995. Interview.

[11] Plaster, John. St. Paul, MN: March 9, 1995. Interview.

buildings or even beacon towers. Overpass bridges can also be used to gain a bit of elevation from which to fire.

No option against jet aircraft other than getting them on the ground where they live is effective. Yet damaging or destroying even one jet aircraft will provide a tremendous psychological boost.

If the only shot is crossways from only slightly above, and only a .30-caliber sniper rifle is available, fire one round each into the wings, and one round crossways about one foot ahead of the cockpit.

Professional snipers virtually always retire after three quick shots.

A local electronics wizard offers the following advice. The fellow holds nine private FCC licenses, and is locally regarded as the best of his bunch. In that regard, his advice may not be applicable. We may not have an electronics wizard this good on call at the time of need.

He suggests realigning the electronic beacons on which jet aircraft approaching on instruments must land. "Using a sophisticated spectrum analysis, I can find any military

beacon frequency," he says. "It may take a few hours, but I guarantee that even if the signal is duplexed, it is a piece of cake. I can reset the signal, flying the plane right into the ground."

Another ploy he highly recommends is broadcasting false, misleading strafing instructions to the pilot, or giving phony instructions to fly to another distant airport.[12]

Even if defenders have people sufficiently skilled in electronics who have access to lab-grade test equipment, and who can and will realign ILS systems or broadcast false signals to an attacking aircraft, this ploy will only work if other factors such as foul weather and terrain permit.

Unfortunately this is about all there is. Defenders can do little against attacking military jet aircraft with light weapons at their disposal. Fortunately, military jets have not yet been used against our society. If they ever are, the best the experts can suggest is to stay low and hidden, and then go get that sucker where it lives.

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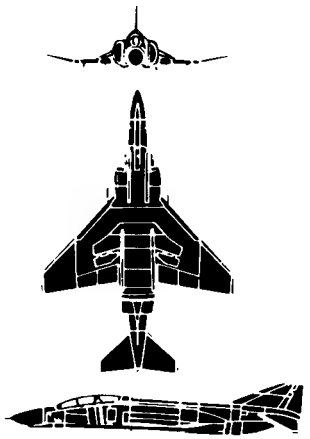
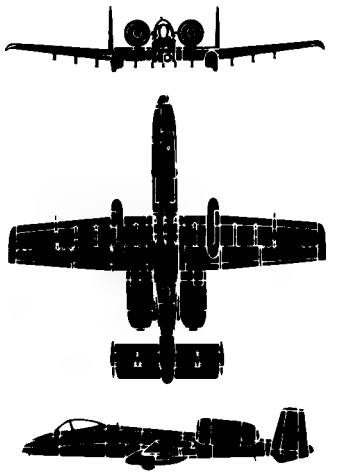
[12] Gordon, Ken. Moscow, ID: February, 1995. Interview



F-4 PHANTOM (USA)
WINGSPAN--12 METERS
LENGTH ---- 18 METERS
SPEED ----- 1,325 KNOTS
RANGE----- 1,800 KILOMETERS

F-5 FREEDOM FIGHTER (USA)
WINGSPAN--8 METERS
LENGTH --- 15 METERS
SPEED----- 950 KNOTS
RANGE ---- 3,700 KILOMETERS

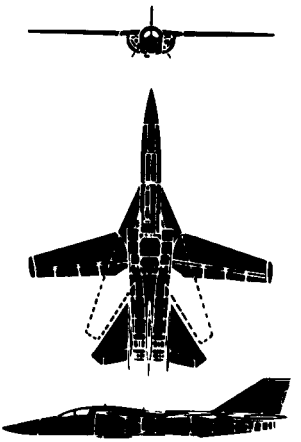
A-4 SKYHAWK (USA)
WINGSPAN --- 8 METERS
LENGTH ----- 12 METERS
SPEED ------ 620 KNOTS
RANGE ------ 3,307 KILOMETERS



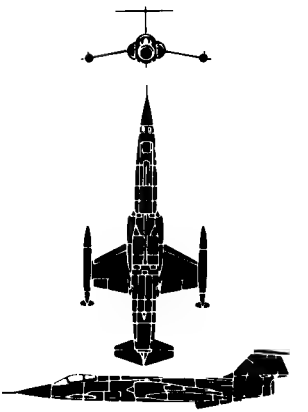
A-10 THUNDERBOLT II (USA)
WINGSPAN--17 METERS
LENGTH ---- 16 METERS
SPEED ----- 400 KNOTS
RANGE -----4,265 KILOMETERS

F-15 EAGLE (USA)
WINGSPAN - 13 METERS
LENGTH --- 19 METERS
SPEED ---- 1,600 KNOTS
RANGE ---- 3,200 KILOMETERS

F-14 TOMCAT (USA)
WINGSPAN -- 10/20 METERS
LENGTH ---- 19 METERS
SPEED ----- 1,500 KNOTS
RANGE ----- 3,220 KILOMETERS



F-111 (USA)
WINGSPAN -- 10/19 METERS
LENGTH ---- 22 METERS
SPEED ----- 1,500 KNOTS
RANGE ----- 6100 KILOMETERS



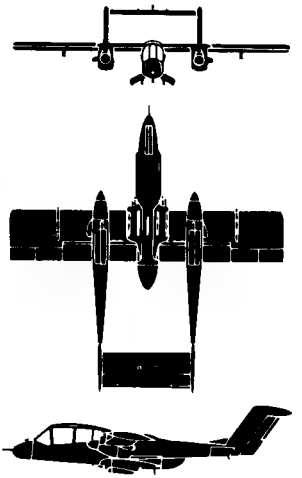
F-104 STARFIGHTER (USA)
WINGSPAN - 7 METERS
LENGTH --- 17 METERS
SPEED ---- 1,300 KNOTS
RANGE --- 2,400 KILOMETERS

A-6 INTRUDER (USA)

WINGSPAN ---- 16 METERS
LENGTH ------ 17 METERS
SPEED ------- 600 KNOTS
RANGE ------- 1,550 KILOMETERS

F-16 FIGHTING FALCON (USA)

WINGSPAN --- 9 METERS
LENGTH ----- 14 METERS
SPEED ------ 1500 KNOTS
RANGE ------ 1100 KILOMETERS



OV-10 BRONCO (USA)

WINGSPAN --- 12 METERS
LENGTH ----- 13 METERS
SPEED ----- 243 KNOTS
RANGE ---- 2,300 KILOMETERS

Chapter Eight
Thin-Skinned Utility Vehicles

No doubt most defenders feel that they already know how to deal with non-armored vehicles such as Humvees, standard troop transport trucks, weapons carriers, semi-tractors, fuel and water tankers, and other miscellaneous vehicles used to haul men, weapons and munitions. Citizens may know how to ambush these machines, but may not initially realize how important they are to an aggressor's efforts. Bradleys used against citizens, for instance, will arrive on the scene carried by flatbed trucks. If the flatbed trucks don't get there, neither do the Bradleys.

"You know," one fellow told me, "it's just like trapping BATF's pickup trucks, when they come to shoot your wife." Well, maybe, but there must be a bit more to doing a good job than first meets the eye. This chapter is designed to get readers thinking about the problem, rather than waiting until the last minute to come up with effective devices. The transportation of fuel and supplies will be very critical if aggressors use heavy weapons. Abrams tanks get one mile to six gallons of fuel.[1] The quickest way to stall an

[1] TM 9-2350-264-10-1, *U.S. Army Field Manual.* pp. 1-16.

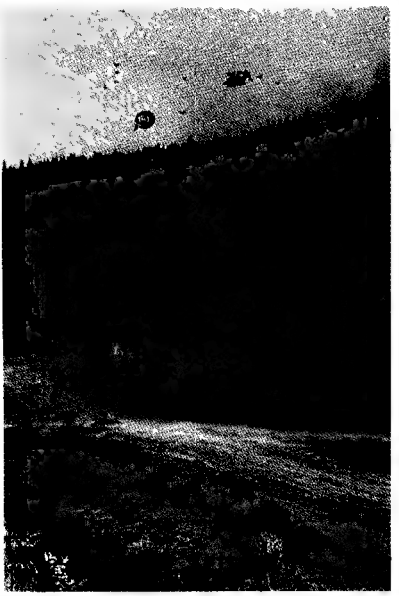
offensive tank action may not be to take out the tank, but to take out its fuel transport truck!

But doing this work is not routinely easy. Common Humvees, for instance, have built-in pumps designed to maintain usable air pressure in all four tires, in spite of what may commonly be thought of as major damage, such as small-arms fire to a tire.

Land mines can be set for key government vehicles. In the case of very important projects, mines can be radio detonated.

My first experience "shooting out" tires occurred about 40 years ago. During the course of a fairly high speed chase, I put what we later counted to be seven rounds through a rear pickup truck tire with my .22-caliber Hi-Standard Supermatic pistol. Seemingly, the rounds had no effect. It looked as though I wasn't actually hitting the tires.

We had two long rifle clips for the pistol, so the driver pulled over to the other side and I expended ten additional rounds into the left side. After perhaps five minutes and at least five miles on tough gravel roads at high speed, the tires finally ran flat. The better part of wisdom, under the circumstances, suggested that we allow the young hoodlum drivers to pull over and run off, which they did. Friends in the police suggest that they do not get all that much better results using .38 Special or 9 mm. rounds on tires.[2]



Land mines are very effective against aggressors' vehicles.

Some countries have movable spike boards set up at their borders which can be pulled out in front of offending vehicles. While this device might work with the BATF

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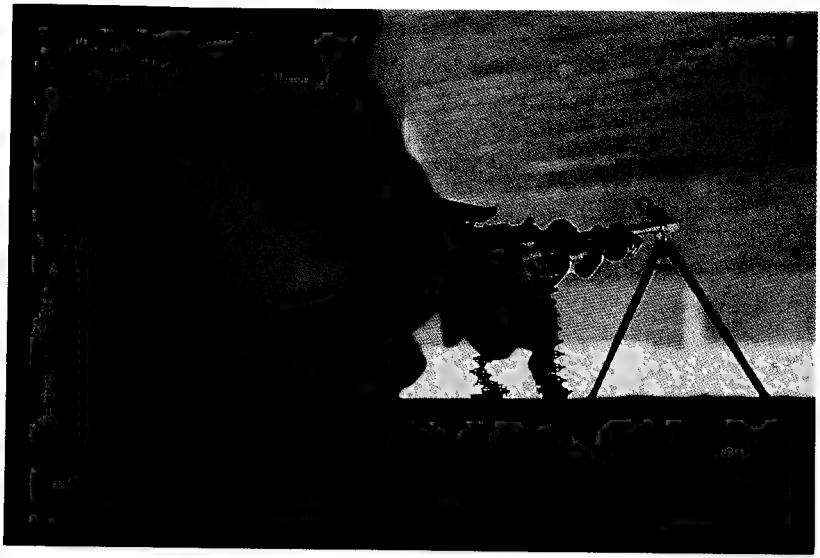
[2] Sheriff's police. Wabash County, IN: Summer, 1963. Interview.

pickup, it won't deter most U.S. military vehicles with their self-inflating puncture sealing tires.[3]



Thin-skinned transport vehicles can be taken out with light small-arms or sniper fire.

Use of hollow three-pronged road stars to protect against and trap rubber-tired vehicles is commonly thought of as being an effective deterrent. However, the military are no dummies. Old motor pool sergeants doubt that they would work. "If they did, we would just run a tracked vehicle such as a Bradley in ahead of them, clearing the road," he said.[4]

"Wouldn't hollow road stars get any pneumatic tire?" we asked. At this point, answers became evasive. Apparently,

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[3] Somalia, Africa: 1968-69. Personal observation of author.

[4] Motor pool sergeant. Gowen Field, Boise, ID: January 9, 1995. Interview.

many of these old guys really don't know for sure, but assume that the effective use of WWII low-tech is unthinkable. Most modern military tires are self-sealing.[5]

Rifle fire at military tires won't produce many immediately tangible results, unless it is .50-caliber or larger. If defenders have .50-calibers, they had best *not* be firing at tires.

Transport for a modern army is more important than the individual heavy weapons themselves. Rather than taking out an artillery piece, destroy the truck hauling up the ammunition.

Everyone agrees that some land mines work nicely against wheeled vehicles. If it is fairly certain that the target will not be anything other than a wheeled vehicle, use two pounds of explosives in the mine. It's better to use commercial dynamite or homemade Vaseline/potassium

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[5] *Ibid.*

chlorate explosive rather than C-4.[6] C-4 is really too fast for tired vehicles. It tends to shred tires off vehicles, without flipping them over. Trucks, jeeps or Humvees will be immobilized, but it's much better to immobilize a vehicle completely on its back. Use explosives that push or shove, rather than very fast ones which tear and shatter.

Detonator switches for land mines targeted at vehicles with tires should be fast. Otherwise, a fast moving vehicle with only four relatively small points of road contact will zip right over the mine, or the mine will detonate harmlessly between tires.

Modern thin-skinned vehicles such as this Humvee are easy to take out, provided defenders have given the matter prior thought.

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[6] Stevens, Tim. USMC, (Retired). Moscow, ID: October 10, 1994. Interview.

Two pounds of explosives not compressed under a tire on detonation won't even blister a military vehicle's underbelly.[7] Use a common "press to ring" flat doorbell switch as the trigger. Set it about eight inches ahead of the explosives hidden in the road. Explosives can be hidden in blacktop by mixing old motor oil with gravel, and smoothing this over the explosive hole to hide it.

Many doorbell switches are made out of mostly pot metal and plastic which reads poorly on metal detectors. If the explosive charge is loaded in plastic tubes and the batteries are buried a foot or more, aggressors will have a tough time locating the mines, much to their consternation.

Probably thirty-five years ago, as young men, we greased a steep paved drive leading down to a steel gate kept locked by the neighborhood grinch. He drove his pickup to the steeply sloping drive, got out and started down to open the gate. Instead of holding on the hill, the truck slid down into the gate, smashing it so badly that Mr. Grinch had to get a cutting torch to take it out. Like first shooting out tires, this incident sensitized me to the possibilities of trapping rubber-tired vehicles using common household items.

In the mountains where we currently live, we could rig up a relatively simple device to roll large logs down onto intruding vehicles. Gravel and dirt roads preclude using grease, but we could pull out drainage culverts, divert springs (thus creating mud holes), or shovel small gravel onto a steep uphill road, creating hazards that would slow or trap a vehicle.

Once defenders know that some of these traps are possible, they can allow their imaginations to run wild, suggesting all sorts of devices. An oriental friend con-

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[7] *Ibid.*

tinually points out that — of all people — Americans are the most innovative when it comes to these sorts of devices.

Tired vehicles forced to slow down on a tough, uphill pull through mud and loose gravel are much better sniper targets.

Most modern tires on U.S. transport vehicles have internal self-inflating devices that compensate for some small-arms damage.

Sniper rifles accurately fired from great distances can inflict heavy damage on thin-skinned vehicles. Unfortunately, even armor-piercing rounds fired at ranges greater than 250 yards by .308, .30-06 and .300 Win Mag rifles *will not* damage engine blocks.[8] The only damage that will result occurs if a round slips through and takes

[8] Author's personal experience.

out the carburetor, radiator, head or distributor. Damage to a fuel tank, while not immediately threatening, will cause most drivers to turn around and go back. Defenders should also consider putting several rounds into the cargo, if this can be done safely. Some supplies, such as small-arms ammo, will only be very marginally damaged, but put a round or two into cases of LAWs, tank main-gun rounds, mortar rounds or fuel, and it's a whole different story. Most GIs won't even handle damaged LAW rounds, for instance, even if the damage appears to be superficial.[9]

Jeeps can be easily stopped using even small claymore mines.

Without a doubt, the prince of all mines used against thin-skinned vehicles is the claymore. Either heavy or light, claymores all do the job nicely. Claymore fragments

[9] Fort Benning, GA: September, 1963. Personal experience of author.

in the tires, radiator, and into the cab, carburetor, air cleaner and fuel tanks have a wonderful calming effect on thin-skinned vehicles. If money, time and materials are not a problem, construct all heavy claymores using .40-inch fragments. These, as compared to claymores with $^{7}/_{32}$-inch fragments, will push through some Kevlar and light armor *if* discharge is done at modest ranges.[10]

Use any light wire fish line or other non-elastic material to construct sensitive tripwire triggers. If there are big trucks expected, set the wires high, connected to mouse-trap triggers set to go off when an antenna or truck cab strikes them.

Another successful trigger can be set up by stretching the wire tight about eight inches above the road's surface, set to be detonated by pressure as the tires pull it down. In a Third World context, be careful not to catch the village cattle or kids in the zone of fire. In the U.S., joggers might miss the wire but — if they didn't — bad publicity would be monumental and a good claymore would be wasted.

During WW II the French resistance incapacitated innumerable German utility vehicles with Molotovs. Gruesome motion pictures survive to this day which graphically show German soldiers screaming from inside firebombed trucks which are engulfed in flame.[11] Filmed well before the days of video, one can only wonder how these movies were ever made. Did we, for instance, drop 16mm motion-picture cameras in with guns and explosives to the French resistance?

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[10] *Directional Fragmentation Mines*. Graz, Austria: Dynamit Nobel Graz. (undated). Sales brochure.

[11] During the late 1950s and '60s, a popular TV series called *Victory in Europe* featured what appeared to be motion pictures shot from the fifth floor of a Paris apartment complex. Screams of reported German soldiers falling out of a flaming truck are plainly audible.

Sniper rounds into supplies are extremely destructive.

The use of Molotovs against trucks argues for the very largest possible magnum configuration of these devices. Unless defenders totally inundate the vehicle with flame, it probably won't stall. As much in panic as anything else, the driver may keep on going until the fire burns or blows itself out. Riders in the cab will likely extinguish any cab fires with the fire extinguisher. Unlike tanks, vehicle drivers will know what is going on around them.

A Rhodesian constable told me that destructive fires on tarped trucks were much harder to start than one would initially suppose. Apparently he had been the victim of such attacks on several occasions. Of course, if the Molotov can be pitched inside, either in the cargo area or through an open window, the results are more dramatic, especially against trucks hauling soldiers.[12]

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[12] Police Officer. Salisbury, Rhodesia: March, 1967. Interview.

At this writing, Arab soldiers are placing Molotovs in Israeli trucks by riding up to them on their motorcycles.[13] U.S. defenders might use this device in the city, where heavy traffic will generally obscure a defender. Out in the country, this mode of defense would probably only work once. The second time someone came riding up on a motorcycle carrying a jug of gasoline on a stick, they would be summarily shot. The presence of a motorcycle would always be immediately obvious to those in a targeted vehicle, and an instant warning that trouble is afoot once the use of motorcycles by defenders became known.

It wasn't commonly reported in the press, but during the Vietnam era sapper attacks on National Guard trucks and weapons carriers by Americans operating against the U.S. within this country were surprisingly frequent. Generally the deed was made easy by Guard soldiers who lined their vehicles up in tight rows in lots protected only by flimsy cyclone fences. The pattern for a sapper was to take a socket wrench, crawl under the trucks, and remove the fuel-tank drain plug. Fuel from the opened tank streamed down under the trucks and onto the tires.[14] In ten minutes a saboteur could easily pull the plugs on six or eight trucks while remaining completely hidden. One match, fuze or fireball set off the entire lot. Generally, no vehicles were salvaged.

A claymore or Molotov per cab, delivered by sappers, will also decrease the number of vehicles aggressors have at their disposal. Individual devices take more time to place, and unless a time fuze is used, may quickly alert guards that somebody is playing games with their vehicles.

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[13] CNN News. February, 1995.

[14] As reported in the *Daily Idahonian* after a sapper attack on the National Guard Armory in Moscow, ID during October 1971.

Wheeled transport must always accompany heavy weapons.

Thermite grenades placed in thin-skinned vehicles do far less damage than the sapper would hope, unless the vehicle is loaded with ordnance or something similarly inflammable. Burning up the seats or a hole in the floor of a Humvee does not really lead to its demise as a valuable tool. Homemade thermites sometimes won't damage engine blocks irreplaceably. The only viable alternative, if thermites are the only option, is to get them on the fuel tank or set of tires. Electrician's tape can be wound around a hand grenade spoon, and the grenade dropped in a vehicle's fuel tank. As soon as the tape dissolves, it is good-bye vehicle.

Absolutely the only material that will work properly to ruin an internal combustion engine quickly through the oil system is styrene. This is the chemical that is the second component of two-part fiberglass mixtures. It takes about a

pint per engine. At between 35 and 65 miles following contamination, the engine will seize up forever.[15]

If defenders have nothing but moth balls, these will work, but much more slowly, if they are placed in large numbers in the fuel tank. Engines so treated will eventually carbon up and seize, but usually not fast enough to do defenders much good. The trick in both these cases involves getting up on the vehicles so that the contaminant can be applied.

Literally hundreds of tons of supplies are required by modern armies.

Flamethrowers work well on thin-skinned transport vehicles. Generally this is overkill. Defenders may swoop

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[15] Citizens should keep two texts on this subject in their libraries. Both come courtesy of Uncle Sam. TM 31-200-1, *Unconventional Warfare Devices and Techniques,* Dept. of the Army, 1966, *and OSS Sabotage and Demolition Manual,* Paladin Press, Boulder, CO.

into a lightly guarded compound with a flamethrower mounted on a small, fast, nimble vehicle. It's better to save the flamethrower for heavier weapons, unless no other good remedy is at hand.

Several years ago, three students from a Purdue extension campus drove to a small farming community, intent on imbibing as much beer as possible. As the evening wore on, they connived together to swipe a large polished granite ball from the pedestal of a monument in a rural cemetery.

By dint of great effort they were able to load the slippery ball into the trunk of one of the young men's brand new Chevy convertible. Every time they went around a corner, the ball splintered a new soft spot in the fiberglass trunk compartment as it rolled around unrestrained. By displaying great persistence, and with great loss of value to the new fire engine red convertible, they got the ball back to their apartment in the big city.

One enterprising fellow took the ball to speech class, where he tried, as a class project, to sell it to his fellow classmates. He was unsuccessful, so the ball simply remained in the classroom center, where it rolled around for almost three months. One day the fellow got a bill from the school for $18.00 for fees involved with crating the ball up. He was sternly advised to pick up his crated property immediately.

But, alas, the fun loving students did not gather together enough help to move the heavy load. Upon being dropped at the front steps, the bulky ball broke out of its carton, and rolled down a flight of stairs into the basement, where it smashed through double-locked doors, finally lodging in a cigarette machine. The three students now knew the game was really up; they were in deep doo-doo. That basement their ball trashed housed the local police academy!

Gingerly, they retrieved the offending granite ball and rumbled it down the sidewalk to their car. It was one a.m. Where to dispose of this incredible albatross? They drove east from Purdue Center to the city's finest new high school, built — at the time — out on flat, open ground.

The students looked around furtively, and, spotting no one, hurried around to unload the offending granite ball. It appeared as though it cracked, after it dropped from the trunk's lip, but close examination revealed that its tough, polished surface remained unblemished. Silently, the trio stood in the eerie night, admiring the fact that they were finally free of the offending object.

As if it possessed a life of its own, the ball started to roll. Very, very slowly, at first, it began moving down the street, swerving from one side to the other.

The boys drove away, but after 15 minutes or so curiosity and concern took hold. "Wonder where that thing ended up?" they said to one another. Out of curiosity they drove around East Side High, coming in from the north this time in the belief that this would suppress any official suspicions.

They were horrified by the scene at the school. A city police cruiser, complete with its front end squarely and firmly crunched up on the ball, sat there with its headlights shining up into the distance and its emergency light flashing grotesquely. The next morning's paper featured a front page story concerning the mysterious ball that had caused $535.00 damage to a city patrol car. Back when vehicles cost $3,500, this was lotsa bucks. A picture of the mysterious ball at the city scales ran on the inside page where the story continued.

Apparently this very unlikely, reluctant and mostly incompetent trio successfully trapped one of the city's official cars. To this day, those fellows are convinced that they could easily take out an aggressor's vehicle either by

ramming it with one of their own vehicles or doing something as simple as rolling a monument stone down a hill into an opposition Humvee.[16]

During the Randy Weaver imbroglio, some resistors apparently succeeded in pulling the drain plug from a few military vehicles' rear ends or transmissions. Perhaps the loss of grease eventually led to the vehicle becoming incapacitated. Nothing happened in time to make any difference in the outcome of the government attack.[17]

Defenders must take great care that all means and methods they undertake against regular, non-military type vehicles do, in fact, bring about the desired results in sufficient time to influence events. And they must be sure that these methods are practical.

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[16] An incident from the author's early experience. More specific details are too damaging to make public.

[17] Spokane, WA: TV news intimated that there were several "minor ineffective attacks on agents' vehicles."

Chapter Nine
Mortars, Artillery, Heavy Weapons and Their Carriers

The last major category of military heavy weapons that may be thrust against average citizens is a long-range bombardment class of hardware characterized by mortars and artillery. James Dunnigan points out that half of military casualties are artillery induced. Artillery could theoretically include battleships, submarines and strategic bombers, but these are obviously outside the realm of a book on using common household items to defend against heavy weapons, and are unlikely to be used against its citizens even by an almost despotic government.

For artillery-class weapons to work effectively against defenders, defenders must be fixed in place for relatively long periods of time. Our governmental enforcers are not yet like the old Soviet KGB, who had integral heavy weapons units carried right along with their main fighting divisions.[1] No one, presently available, has any recall of actual recent use of these units against civilians in Russia. Notorious for their record of pounding civilians, this seems like very strange news. No one doubts that the Soviets would have used heavy weapons on their fellow citizens if the need arose, suggesting that artillery in the context of a

[1] Dunnigan, James. *How to Make War*. NY: Quill, 1983, pp. 91-92.

paramilitary action is a poor choice, or that citizen defenders wisely melted away before heavy artillery could be brought up. Because mortars (a light, mobile form of artillery) have often proven decisive in paramilitary warfare, it has to be a combination of both.[2]

Relatively small weapons such as .50 caliber machine guns or 20-mm cannons can do a great deal of damage. Citizen defenders can use snipers or sappers to take them out.

Historically, relatively light, convenient, portable drop-fired mortars have virtually always been decisive in any paramilitary operation. In Thailand, on the Lao and Myanmar borders, firefights with drug lords are basically settled with 60-mm mortars. Both sides start by firing their mortars. Those with the most rounds keep firing after the other side has expended their munitions. Infantry on

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[2] *Ibid.*, p. 70.

the side with the fewest rounds wisely calculate that they are outgunned, and quickly melt into the countryside. Numerous completely bloodless but decisive actions have been fought using such tactics. American soldiers could not initially figure them out. Thai soldiers claim that the outcome of such battles is exactly as if they had fought, but they don't have to give up their lives in the process.[3] There may be more wisdom to this philosophy than first meets the eye.

Citizen defenders cannot shoot it out with heavy artillery. They counter this threat by being careful not to be fixed in place, and by organizing sapper attacks.

Mortars fire accurately up to 5,000 meters (3.1 miles). A few heavier units with rocket-assist projectiles can reach 9,000 meters (5.6 miles), and they are incredibly accurate.

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[3] Tanner, Maurice. U.S. State Department (Retired)., Bangkok, Thailand. December, 1986. Interview.

I vividly recall an old sergeant at Benning who could put one practice round after another in an army cot blanket at 600 yards.[4]

Light infantry who knew the country and had a reasonable supply of ammunition always had an advantage over those with no mortars. Individual, shoulder-fired grenade launchers are fine, but they often don't pack the punch or range.

Experts recommend using snipers to neutralize mortar crews. This advice is both very good and very bad, at the same time.[5]

Generally, mortar emplacements are done hastily, without great construction of revetments including use of camouflage, as is usually done with virtually all other artillery. Unless an aggressor, using large towed or self-propelled artillery, completely dismisses the threat of defenders' counterstrikes, he will follow standing military procedure by digging in his guns. As a result, the artillery will be so far underground that not even the artilleryman's eyeballs will be visible. Whereas it generally takes several hours with backhoe, bulldozers and pick and shovels to dig in a 105-mm gun, people with mortars will simply set them up and start firing.[6]

Sniping away at dug-in artillerymen is virtually impossible. Those who do try a shot or two invite instant, massive and very deadly retaliation on the part of helicopters, counter-snipers and even armored vehicles. Virtually by definition, heavy artillery is well-tied into communications nets.[7] If this were not so, they could not

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[4] Author's personal experience. Fort Benning, GA. 1963.

[5] Plaster, John. *The Ultimate Sniper.* Boulder, CO: Paladin Press, 1993, pp. 347-363.

[6] Dunnigan, James. *op. cit.,* p. 79.

[7] Huskey, Donald R. USMC, (Retired). Moscow, ID: February, 1995. Interview.

fire ten times as far as they can see, with any degree of accuracy.

Heavy weapons are characterized by their many intricate assemblies which are ideal targets for sappers.

Logistics problems relative to these situations are difficult to insurmountable. Defenders must locate offending artillery, which can literally be anyplace within scores of square miles. They then must plan on an ambush that will take into account counter-snipers, trucks, and helicopters, or they must do their damage and then effectively and safely fade into the bush, away from the aggressor's reach.

Successful deployment of artillery requires extensive haulage.[8] It may be the better part of valor to take out supply trucks, but let us assume that some hapless

[8] Dunnigan, James. *op. cit.*, p. 75.

defenders have been cut off and surrounded, that they continue to hold out against all odds, but that the government in its attempt to "help" them brings up mortars. As the mortar bombs start to fall, the overriding question is how do sympathizers on the outside determine from what exact location the mortar rounds, under which their compatriots suffer, originate? Sophisticated electronic devices are available to determine the origin of incoming rounds, but it is doubtful that defenders will ever have these, or any effective clue, regarding counter-battery fire.

Citizens who must incapacitate artillery must study their mechanisms thoroughly so that thermites and explosives can be effectively placed.

The sound of mortars being fired is not particularly loud in terms of 105s or other artillery, but it is distinctive. It is a sort of hollow, metal, tubular ping. Given a bit of luck, along with good knowledge of the terrain, a sniper team

may locate a mortar crew and be able to deal with it effectively. Mortar crews may not have helicopters and armored vehicles available to them for use, either to escape sniper teams or to counterattack.

GIs claim that an armor-piercing round fired at reasonably modest ranges from a sniper rifle will punch a big enough hole in a mortar tube to trash it.[9] Or the sniper team may elect to capture or run off the mortar crew, seizing tubes and ammo intact. The chances are that there will be some sort of motorized transport used to haul the equipment in that can be turned to defenders' use.

The question then for defenders involves having a firm idea of where they can safely stash their booty. It's either this or destroy the hardware. Mortars are relatively cheap. The destruction of a mortar tube and even a Humvee load of ammunition will probably not influence even a poor, Third World government.

During Vietnam, VC and NVA soldiers sunk cached weapons up through 20-mm guns wrapped in old inner tubes in rice paddies, rivers and marshes.[10] No doubt some equipment whose brief owners are now beyond the pale still lies submerged someplace in southeast Asia.

If defenders could locate heavy artillery emplacements before they inflicted irreparable damage, they might be able to destroy the guns and emplacements. A retired officer who saw D-7 and D-8 Caterpillars used against Russian tanks suggested their use against heavy artillery.

However, artillery crews all carry large quantities of small arms and ammunition. Heavy construction equipment is common in the U.S., but it doesn't sit under every shade tree throughout the land. If defenders are not able to find construction or farming equipment close at hand, and

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[9] Stevens, Tim. USMC, (Retired). Moscow, ID. October, 1994. Interview.

[10] Matoon, Steve. Vietnam Veteran. Pullman, WA: August, 1992. Interview.

are not equally willing to engage in a pitched battle with artillery crews, this is not a viable alternative.

Even very heavy weapons have delicate loading and sighting mechanisms that can be destroyed with tools as mundane as bolt cutters.

Reality boils down to the realization that, if defenders are ever fixed in place, government forces will probably use other methods rather than heavy artillery to deal with the situation. It would have been far better not to have become fixed (in the military sense) in place, in the first place but, having committed this error, there is likely little that can be done to neutralize artillery. Counter-battery fire for average citizens is not an option, other than well-trained, practical sniper fire.

In the unlikely event that artillery is used against citizens, it will probably be mortars. In this case, defenders have at least a slim chance. If our government starts using fire bases against citizens, this is Grozny. Bigger problems

are out there than can be dealt with in a book of this nature.

Artillery is very mobile and will be tough for defenders to locate. The trick will be to get up to the piece, not to find some way of incapacitating it.

Homemade mortars, grenade launchers and ammunition are relatively easy to construct and deploy. But, as a retired officer said, "Homemade mortars won't stand a chance against regular military equipment unless used the first time in complete surprise against lightly armed police-type units."[11]

Like so much of what must be done, if a government turns militant against its citizens, the only really effective measures are guerrilla-type sapper attacks. These range from very mundane to extremely clever, depending on who is looking at the issue and for how long.

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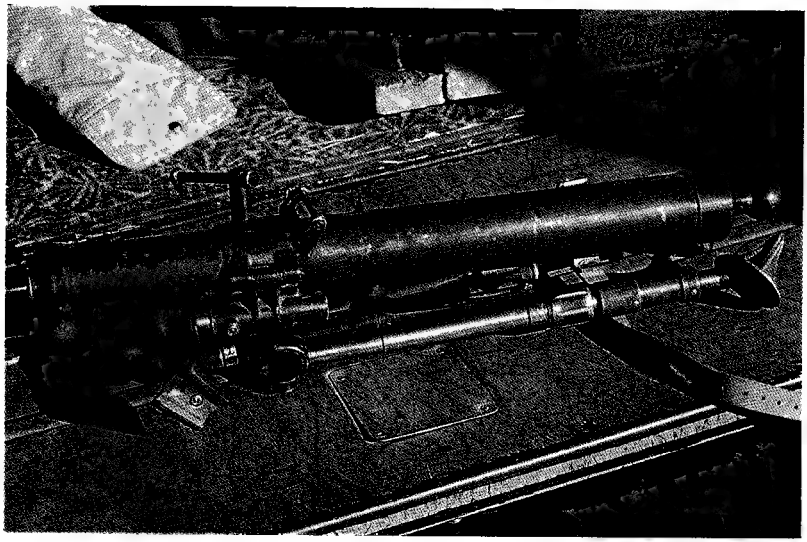
[11] Stevens, Tim. USMC, (Retired). Moscow, ID: October, 1994. Interview.



Standard U.S. 60mm mortar with bi-pod folded, ready for transport.

Extensive use of sapper attacks explains, in large measure, why Third World countries have been unable to increase their supply of capital goods. Necessary funds for plants and equipment are forcibly funneled off into the purchase of military equipment used to suppress and harass citizens who, in turn, destroy it every chance they get.

Vietnam veterans are especially adamant, claiming that sapper attacks should not be overlooked. "They drain an enemy's resources and demoralize him," one veteran said.[12] Perhaps so — modern artillery pieces are quite easy to render unusable, if not completely destroyed. But most governments, with their vast resources, always seem able to bring up that next piece of replacement equipment.

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[12] Matoon, Steve. *op. cit.*

The guerrilla's friend, a U.S. 60mm mortar on base plate with bi-pod and sight attached, ready for deployment.

Vietnam protesters, for instance, destroyed hundreds of thousands of dollars' worth of equipment without really affecting the government's total supply. Yet, these protesters were eventually successful, forcing a political solution to the war unfavorable to the U.S.[13]

Those who can get up close to artillery and/or heavy weapons carriers have a huge range of options open to them. Most artillery pieces, excepting simpler light varieties of 105-mm guns made for light infantry units, are quite intricate. Major artillery pieces are subject to close tolerance in the breech mechanism, and rely on intricately

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[13] Welsh, Douglas. *The Complete History of the Vietnam War*. Greenwich, CT: Dorset Press, 1990, pp. 162-169.

massive traverse mechanisms as well as complicated (but tough) electronics for their ranging.[14]

Sappers can start by using thermite grenades, Molotovs or flamethrowers to burn the tires off gun carriages, weapons carriers and the many trailers that haul electronics gear, ammunition and the weapons themselves. Most mortars, especially American ones, don't have rubber tires, but other methods are available for these weapons.

Some heavy weapons have independent ground support in the form of trails, spades or simply hydraulic legs. Theoretically, they can be zeroed in with their tires burned off, but this is said to be unlikely, and the unit cannot be moved until repairs are made to burned-out axle bearings, and the tires replaced.

Fire control electronics on heavy ordnance is very rugged and may be contained in separate electronics units deployed away from the guns themselves. Sappers can place *big* thermites on these electronics modules, drench them in gasoline and fuel oil, or shoot *multiple* holes in the black boxes with the largest weapons available, using armor piercing rounds. These black boxes are built ruggedly.[15] GIs report that hand grenades detonated nearby have not knocked the units out. Some artillery people are even unsure if Molotovs on the computers will do the job.

Guns can be rendered at least temporarily inoperative by placing a thermite in the breech or barrel, and by firing armor piercing rifle rounds at close range into the open breech, gouging the breech block and chamber. Submachine guns and AK-47 rounds won't do a proper job. Even relatively small thermites will burn down through shock absorber devices called recuperators, doing what

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[14] Dunnigan, James. *op. cit.*, pp. 70-80.

[15] Huskey, Donald R. USMC, (Retired). Moscow, ID: January, 1995. Interview.

superficially appears to be modest damage but — nevertheless — rendering the piece inoperable.[16]

The three basic components of a small portable mortar are easily seen.

A stated goal of most modern armies is to move to more and more self-propelled guns. Although some *may* be hand-operated, deployment is severely restricted by incapacitating the engines in these machines.[17] This is best done with large thermites or Molotovs. Vehicles that transport large guns are usually armored, some more than others.

Mines on the road can render movement of these self-propelled guns very difficult. About 50 percent have tracks. The rest are mounted on rubber tires. Command detonated mines, if they can be installed, are probably best. Large claymores will probably not do the job, even when fired

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[16] *Ibid.*

[17] Dunnigan, James. *op. cit.*, p. 78.

close in. Plan for about 12 to 14 pounds of homemade C-4 to disable and pitch over these relatively large machines.[18]

If access to the ammunition is possible, either burn it or fire .22 long rifle rounds into each cartridge. They won't detonate, but they will be turned to useless junk. The cost of these artillery rounds is from $400 to $800 *each*. No artilleryman will use damaged rounds, unless their lives are immediately threatened.

Sappers with no more than common bolt cutters can do massive damage to artillery pieces and their ancillary sighting equipment if they can successfully creep in among the weapons. This, again, is a situation where men with Ghillies could be tremendous assets, providing they were not pinned down in some stinking retreat by an aggressor using artillery.

Using homemade mines or sapper charges right at the battery location to blow a tread or a tire from a self-propelled gun is not seen as a particularly effective measure. Veterans of Vietnam, and especially Korea, recall self-propelled guns that threw a tread or were damaged by a mine, being pulled or pushed by other machines to a place where they were set into firing position and used until the crew could make necessary repairs.[19]

Artillerymen claim that it is very difficult to damage a gun barrel or breech using external explosives. "In a few cases, properly placed, powerful shaped-charges can be used to damage a barrel or breech, but defenders can never be sure, until they try them," artillerymen claim.[20] In any case, explosives must be properly placed, very powerful and positioned to cut deeply into the weapons' solid parts. Or sappers can carefully pack the explosives in among the

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[18] *Ibid.*, p. 81.

[19] Mink, Leland Leroy. Vietnam veteran. Moscow, ID: September, 1969. Interview.

[20] *Ibid.*

recuperators, loading ramps, traverse mechanism, hydraulic lever or whatever looks important and relatively delicate. Even a very small bend or dent in many of these controls will render the gun inoperable.

Citizen sappers who have never been around or even observed artillery being deployed should plan to spend several patient minutes studying their targets close-up, before actually placing any charges. Every model is different. But it will be immediately obvious to anyone half-mechanically inclined, where explosives should be placed to do the most good.[21] Numerous push rods, caps, wheels and servomotors characterize modern artillery.

If defenders can get up on mortars and their ammo supply, the best plan is to haul everything away, for conversion to your own use. But this may not be possible. Mortars are comprised of three parts — tube, base plate and the bi-pod aiming assembly. Some large Russian mortars are mounted on rubber tires, but generally the charm of a mortar relates to its easy packability, separated into three component parts.

Base plate assemblies are the heaviest, most cumbersome portion of a mortar assembly, and the least important of the three assemblies. Boards, rocks and sheets of steel can be substituted, if the new owner is willing to accept greatly reduced accuracy.

Mortar tubes can easily be destroyed by placing a thermite or small C-4 charge in the tube. Smash the sight with a rifle round, rock or the base plate. Bi-pods can be bent by driving over them, dropping a rock on them, or cutting one side with a thermite. The world over, mortars are the light infantry and guerrilla's friend. They are cherished pieces of equipment and are seldom destroyed.

Mortar tubes can be made from steel pipe. Mortar bombs are easily constructed from standard pipe fittings and

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[21] Huskey, Donald R. *op. cit.*

fitted with homemade explosives. Those interested in this procedure should purchase a copy of *Ragnar's Big Book of Homemade Weapons*, available from Paladin Press.

Like tanks, aircraft, APCs and even light utility vehicles, dealing with artillery won't be easy. Successful defense will only be undertaken by clever, patient, innovative people. Hopefully, these types of people can continue to be productive members of our society, turning out new, innovative goods and services, and they will never be forced by our government into such horrible confrontations.

Conclusion

Generally, it is the policy of those who write how-to manuals for men of action to wrap things up with either a concise outline of what has been covered, or a word of encouragement. In this one instance I am going to digress from this policy in order to cover ideas that I feel are more important than a summary for citizen defenders.

The simple truth of the matter is that, if we are attacked by our own government using heavy weapons, it will be at the hands of young men and women in our own military who are our own sons and daughters. Distasteful as it may seem, our own children and young adults will be the wielders of the heavy weapons causing our destruction. This brief conclusion is intended as an impassioned plea that our young men and women not follow orders mindlessly, and that when and if they are given orders to attack fellow Americans, they give serious, thoughtful consideration to both the background and consequences of such actions.

This request is not meant in a macho sense, but rather a moral one. What glory is there in doing practice strafing runs with your helicopter against defenseless women and children, or of running your APC into a stinking little plywood shack some remote officers have labeled a bunker?

It is an historic, observable fact that totalitarian regimes have always demonized their enemies. "Go kill those racist, hate mongering, anti-government rebels," you may be ordered, when in fact your enemy is nothing more than your fathers and mothers born to a free society. Like animals born free who are moved to a zoo, they may see freedom in a totally different light and be extremely uncomfortable in the unfree environment in which they are now forced to live and to which you contribute if you attack.

Some of these old folks may sell their lives and freedoms very dearly, constituting some danger to you and your compatriots. It all depends on the circumstances. European Jews who survived WW II said that "we hoped by doing this one last thing, the Nazis would finally leave us alone." Perhaps our society will continue to operate, but someday several people may collectively say "This is enough. I have had it." The results may, as some oracles claim, be very, very bloody.

But this is not the principal reason to think about the orders that you, as a military person, may receive.

Our *posse comitatus* act provides that "whoever, except in cases under circumstances expressly authorized by the Constitution or act of Congress, willfully uses any part of the army or air force as a *posse comitatus* or otherwise to execute the law shall be fined not more than $10,000 or imprisoned not more than two years, or both."

Law enforcement agencies, according to the courts that have ruled on *posse comitatus*, have the right to passive military assistance, including training and use of facilities and equipment provided by the federal government. But obviously one can see that both federal and local units of government are pushing the limits of what the law will allow. Huge numbers of personnel are being sent to military training facilities. The use of military planes,

helicopters and tracked equipment for police operations has increased dramatically.

Americans among the citizen militia movement have finally come to understand that Americans' ill-conceived and mostly phony war against drugs has cost huge chunks of constitutional freedoms. Perhaps these freedoms are irreplaceable, but there seems to be no method in our culture to oppose the war on drugs and not to seem to support the illicit use of drugs.

In October of 1993, National Guard units were deployed in Puerto Rico to perform law enforcement tasks alongside local police. Patrick Buchanan, speaking for the conservative right, draws huge applause when suggesting that use of military personnel in local and federal policy operations be increased.

Army Special Forces personnel assisted BATF in the assault on the Branch Davidian Church at Waco. Because of their then weak governor, Texas National Guard helicopters were used on a daily basis to harass the Branch Davidians.

Perhaps because of Draconian budget cuts, absence of a real international enemy and the fact that most career military people really do wish to provide a valuable service to society, military personnel are out looking for a "new role" for their services. Even the KGB in Russia is selling security services and industrial espionage. Numerous credible reports suggest that military lawyers are busy "finding legal loopholes to allow further military involvement in civilian law enforcement."

Military attorneys are quoted as saying that "innovative approaches to providing new and more effective support to police agencies are constantly being sought. Gradually legal and policy barriers to police enforcement duties are being eliminated."

Those in the military who believe that it would be fun to whomp basically defenseless, despicable citizens should

recall that "Befehl ist Befehl" ("Orders are orders") was no defense at Nuremberg and will not be a defense at the Higher Court we all must face. In the Shah's Iran, experts claim the Shah was deposed shortly after his secret police tired of shooting their own countrymen and refused to continue the carnage. Some who had acted especially badly were officially punished, but most of those who stacked their arms in favor of their fellow citizens were treated as heroes.

Orders may be given to you in the military to move heavy equipment against your fellow Americans. This is an impassioned plea to look behind these orders and to try to evaluate what is being said on the basis of being a rational American. Just because the politicians or your immediate superior says your intended American targets are child-molesting, drug dealing, orphan hating, subhumans, don't believe it without good, firsthand evidence. The consequences of your actions — even if the old folks don't actually resist — may eventually be dramatic.

It is also incumbent on those of us not in the military to get this word out to our sons, daughters, nephews, nieces and family friends who may unwittingly comprise a despotic military that may engage in actions for which our society may pay a very heavy price indeed.

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